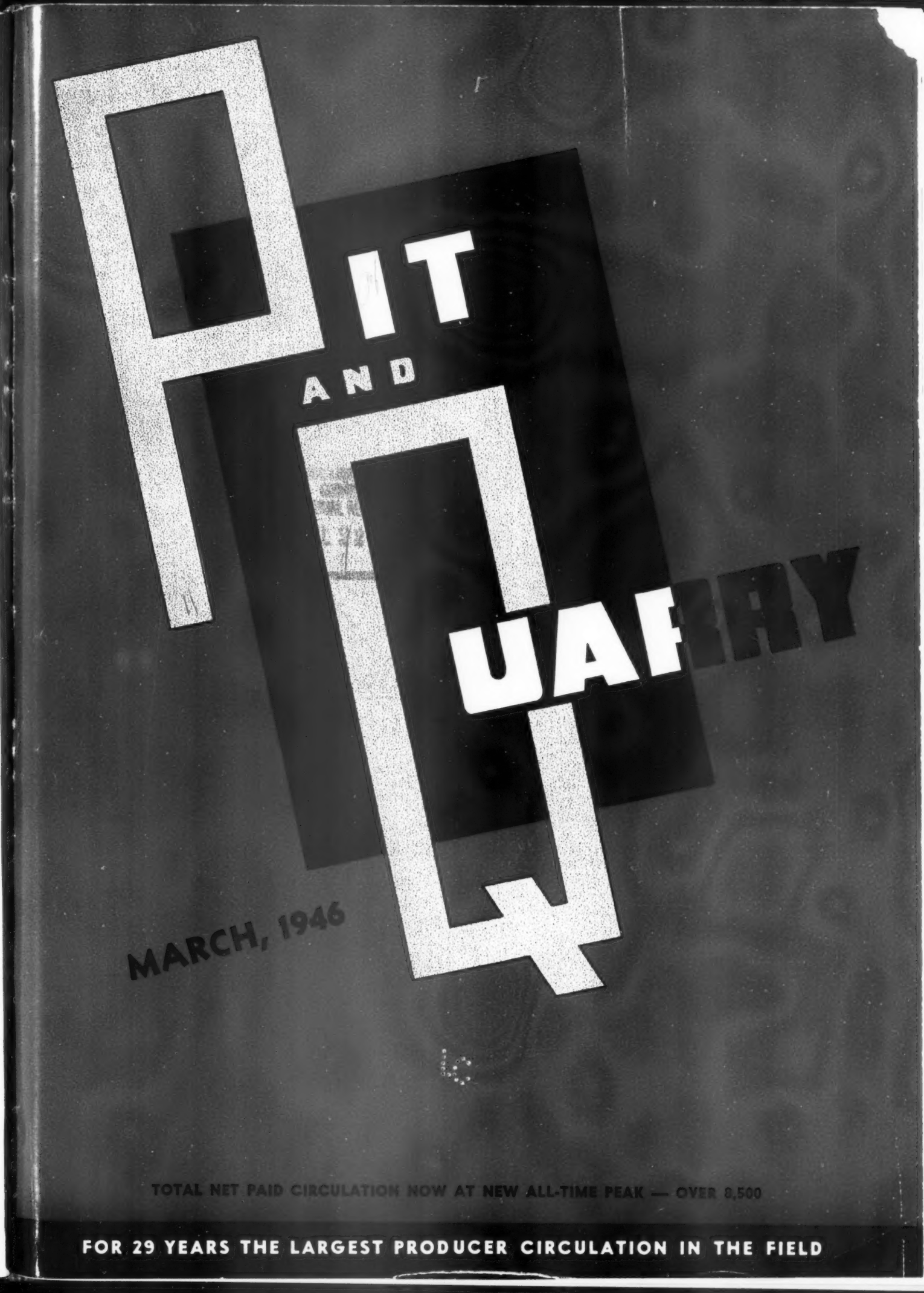
PIT
AND
QUARRY
MARCH, 1946
TOTAL NET PAID CIRCULATION NOW AT NEW ALL-TIME PEAK — OVER 8,500
FOR 29 YEARS THE LARGEST PRODUCER CIRCULATION IN THE FIELD

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JUN 21 1948

TN1
.P65

How fast-acting LIMITAMP CONTROL protects high-voltage motors

TYPE EJ-2 FUSES CLEAR FAULT CURRENTS IN ½ CYCLE

● Limitamp control, with its current-limiting EJ-2 fuses, provides *fast, positive* short-circuit protection for high-voltage squirrel-cage, synchronous, and wound-rotor motors.

When a short circuit occurs, the fuses cut off the rise in current in less than a quarter cycle, and clear the short in less than a half cycle—long before the short-circuit current has time to harm the contactors or motor.

Gives This Lumber Mill Sure, Short-circuit Protection

New Limitamp controls at the Hammond plant are inspected by Lloyd Snook, chief electrician. This factory-assembled group control saves installation time and space as well as materials.

For the newest "packaged" control to protect high-voltage motors, the Hammond Lumber Company of Eureka, Cal., chose fast-acting *Limitamp control.*

Incoming power for the mill is taken directly from the generator bus of a nearby generating station. Therefore, power under short-circuit conditions may run as high as 150,000 kva, making a high degree of protection essential.

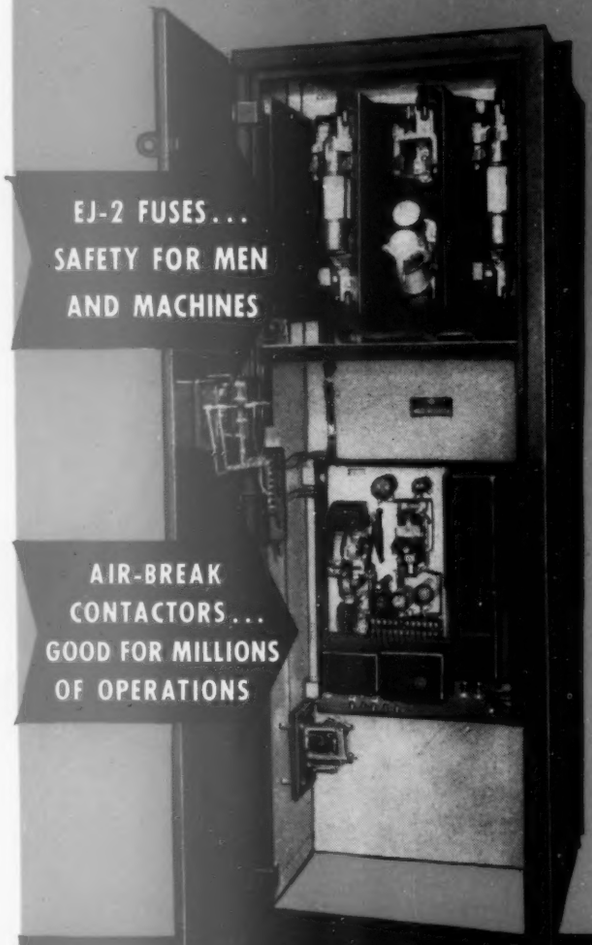
Limitamp control, with its current-limiting fuses, provides this protection for all motors in the plant.

GE INDUSTRIAL CONTROL

Other Advantages Limitamp Control Offers YOU

1. *New air-break contactors* meet the most severe requirements of high-voltage motor-control service.
2. *Efficient overload relays,* accurately calibrated against actual motor characteristics, protect your motors from overheating.
3. *Undervoltage protection*—when power fails or voltage is low, the motor is taken off the line and will not restart on return of power.
4. *Silent operation*—EJ-2 fuses are noiseless when they blow.

NEED MORE INFORMATION? Bulletin GEA-4247 gives a complete, illustrated description of Limitamp control. For a copy, contact our local office. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*



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Generating AIR POWER

Four 700-hp PRE Compressors in mining service.

. . . . with I-R COMPRESSORS

The new PRE is the very latest in electric-driven compressor design. Look at the sturdy sealed frame, with its built-in, force-feed and filtered lubrication system, and full-floating crank- and crosshead-pin bearings. Main bearings have micrometer adjustments from the outside of the frame. Since the crankcase need not be opened for adjustment of any bearings, it is sealed, and thus stays clean.

These are the compressors equipped with air-operated, 5-step Clearance Control . . . a system originated and constantly improved by Ingersoll-Rand. This has always been conceded to be the best method of controlling the output of electric-driven compressors.

To generate large quantities of Air Power, choose the class PRE . . . for high over-all efficiency, reliability, low maintenance, and long life. Sizes 300 to 3000 hp. Let our engineers help plan your Compressed-Air Power system.

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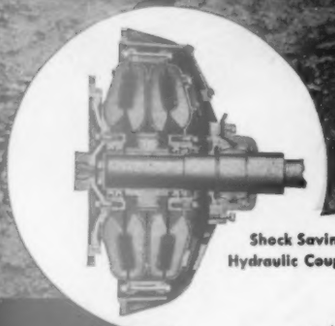
COMPRESSORS • CONDENSERS • TURBO BLOWERS • CENTRIFUGAL PUMPS • ROCK DRILLS • AIR TOOLS • OIL AND GAS ENGINES

PIT AND QUARRY, March, 1946. Vol. 38, No. 9. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $2 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $1 additional for each year. Single copies 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1897.

Lorains are LONG ON POWER



Shock Saving Hydraulic Coupling

. . . And Short on Shock!

No job is too tough for a 2-yd. Lorain 82—the real rock shovel. This husky machine has plenty of power and extra rugged construction—but it has something even more valuable for rock work. And that's a life-saving shock absorber in the form of a hydraulic coupling!

This heavy-duty fluid coupling provides a perfect cushion between the engine and the load—eases strain on cables, boom and power transmission—increases machine life and cuts operator fatigue immeasurably. You'll never stall a Lorain 82 engine in rock or anything else.

Look into this real rock shovel now! You'll like the all-welded, all-steel boom; the center chain drive crawler and the all-steel dipper stick, too. Send for catalogs today.

THE THEW SHOVEL COMPANY · LORAIN, OHIO

Reg. Trade Mark

thew-Lorain SHOVELS

CRANES · DRAGLINES · MOTO-CRANES

TOUGHEST AIR HOSE *ever built!*

A
B
C
G.T.M.-Specified
EMERALD CORD AIR HOSE
for light, medium and heavy duty
THINNER WALL GAUGE—
but far greater adhesion between cover and tube
A—Supertough, non-gouging cover; highly resistant to sun, weather and aging.
B—Special carcass high-strength cabled yarn, impregnated with new "gumbo dough," giving much greater adhesion.
C—Nonporous, seamless, oil-resistant tube; will not swell or flake off.

Now out of the skies comes a new "super" air hose for industry, embodying the revolutionary construction principles pioneered by the G.T.M. — Goodyear Technical Man — in building bullet-puncture-sealing rubber fuel lines for military airplanes. It is the new Goodyear Emerald Cord Hose, fortified with an exclusive interlocked construction that gives far greater adhesion-strength between cover, carcass and tube.

This makes possible a much lighter hose with thinner wall gauge, but with far more ruggedness, flexibility and longer life than any previous air carrier of equal inside diameters. Superbly resistant to oil, gas, heat, cold, weather and abuse. Yet moderately priced because its extra quality comes from superior engineering, not excess beef. Made in light-, medium- and heavy-duty types.

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GOODYEAR

THE GREATEST NAME IN RUBBER

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A Leading University

USES BUELL FLY ASH PROTECTION

POWER PLANTS throughout the industries and institutions that serve America recognize the efficiency of Buell (van Tongeren) Collectors as a protection against fly ash dispersion.

Among the various power plants using Buell Fly Ash Collectors is a leading American educational institution, the University of Illinois at Champaign. The plant of the University has used six Buell Collectors with its stoker-fired boiler, for the elimination of fly ash; over a period of several years.

In fact it may be said that power plants employing Buell Collectors represent a fair cross-section of American industry. They include such well known concerns as: BETHLEHEM STEEL COMPANY, STEELTON, PA., PHILADELPHIA NAVY YARD, WESTVACO CHLORINE PRODUCTS CORPORATION, CONNECTICUT LIGHT AND POWER COMPANY, JACOB RUPPERT BREWERY.

Detailed information on Buell Collectors to meet your specific fly ash requirements will be gladly furnished upon request.

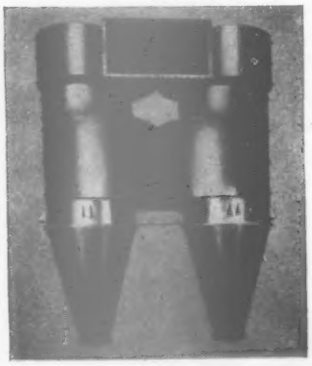

Illustration shows typical unit of a battery of six Buell Fly Ash Collectors installed with stoker fired boiler in power plant of University of Illinois.

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CONSULT BUELL *First* IN DUST RECOVERY
FOR CHEMICAL • ROCK PRODUCT • METALLIC • FOOD • FLUE OR ANY OTHER DUSTS

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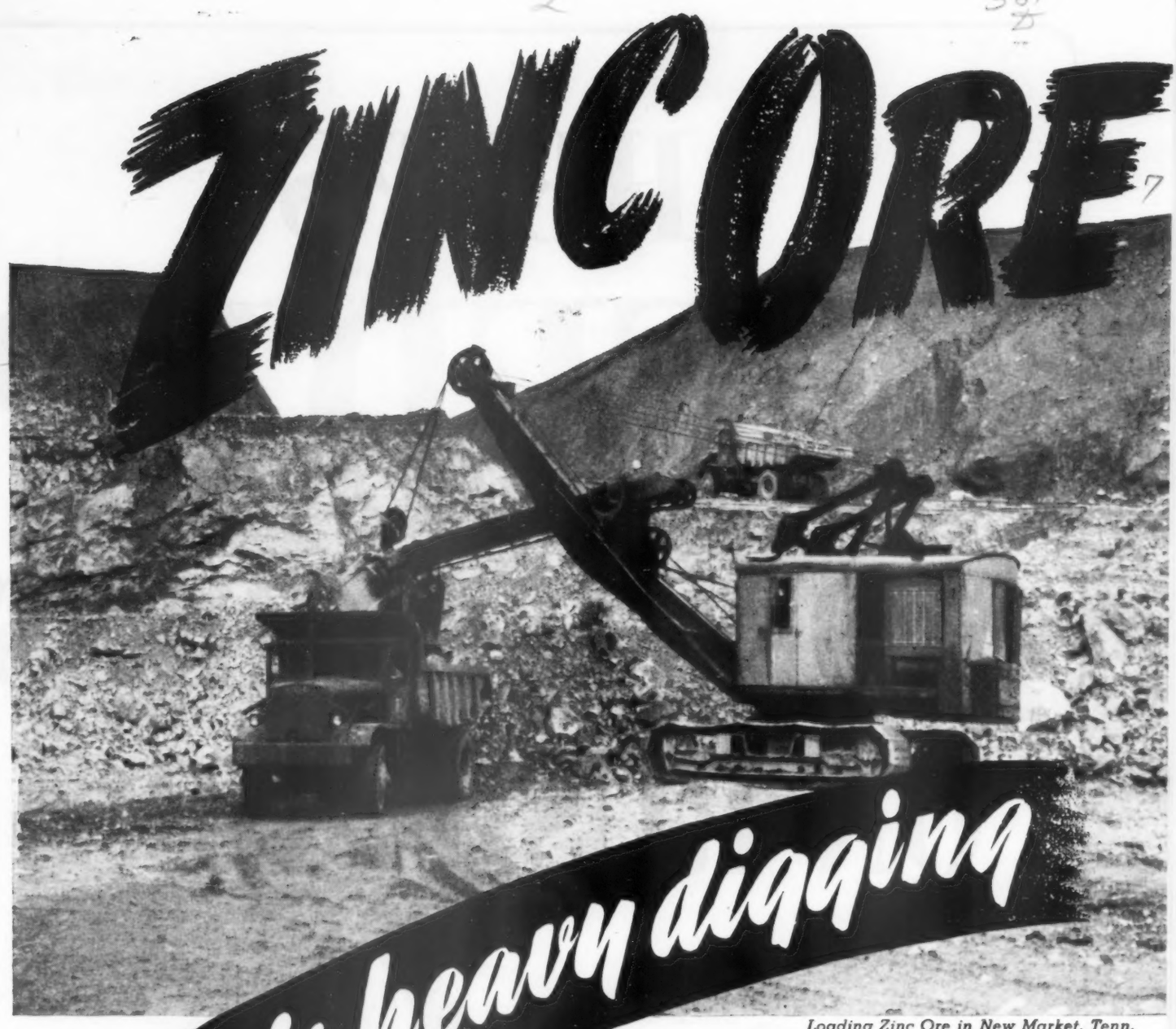
ZINC ORE



...is heavy digging

Loading Zinc Ore in New Market, Tenn.

INDEPENDENT CROWD plus AUTOMATIC CROWD
FOR GREATER DIGGING POWER
THE DUAL CROWD

-and when you have a real Rock Shovel you won't have to worry about output in dirt

BUT that is what Northwests are built for—heavy digging. Northwests have proved themselves to be real Rock Shovels—a miner's shovel that stands the punishment of handling ore and quarry stone. The Northwest Dual Independent Crowd—an automatic plus an independent crowd utilizes force that other shovels waste—the force in the end of the hoist cable. Northwest Shovel Boom Construction brings you a strength that stands the heavy going characteristics of ore and rock (no Northwest Welded Shovel Boom has ever failed). The Cushion Clutch reduces overloads on the drum shaft and associated parts, increases hoist cable life and reduces clutch adjustments.

Here is a combination of advantages that is exclusively Northwest, a combination that lifts Northwest shovels above the ordinary class of shovel equipment for heavy work.

—Just some of the many reasons why Northwests are more and more in demand for mining of all kinds from the Range to the Gulf.

Ask for "Digging Power Plus". It explains Northwest greater digging power.

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Convertible for any Mining Material Handling or Excavation Proble

HELPS
SPEED UP
WORK-PROGRESS
ON RUSH JOBS!

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Contractors! Learn how Complete Lubrication Service helps you beat time estimates on Jobs!

Question: **Are machine breakdowns disrupting tight work schedules . . . slowing work output?**

Answer: Call in Socony-Vacuum! We'll help you avoid equipment failures—speed operations—boost output—with exactly the *right* oil or grease for every part of every machine at work! Whatever your needs, you can now fill them from a *single* convenient source.

Question: **Looking for a way to cut down maintenance time *without* impairing machine efficiency?**

Answer: Rely on Socony-Vacuum! Our Representative supplies you with latest job-tested maintenance schedules—helps your men adapt them to your individual needs. He can also instruct "green" help on *where, when and how* to lubricate all your machines.

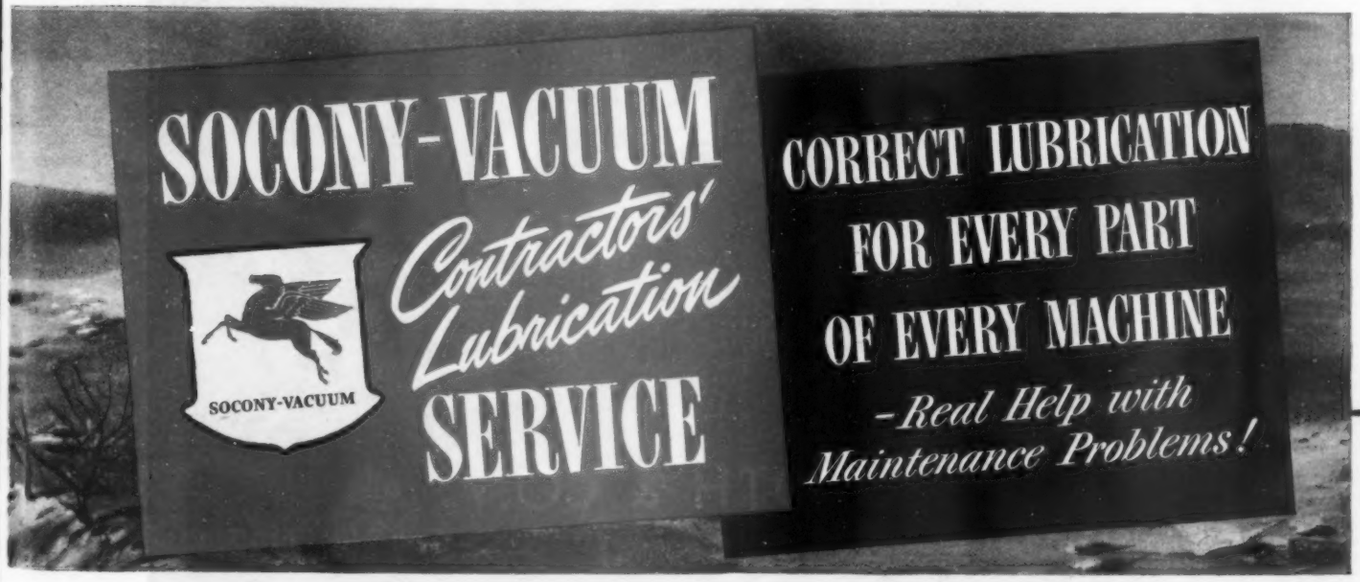
Question: **Are you refueling and lubricating equipment the hard way—losing valuable time out on the job?**

Answer: Rely on Socony-Vacuum! Our on-the-job delivery service minimizes field interruptions, reduces inventory problems, saves office time. No more bother with special orders, follow-ups, extra bookkeeping.

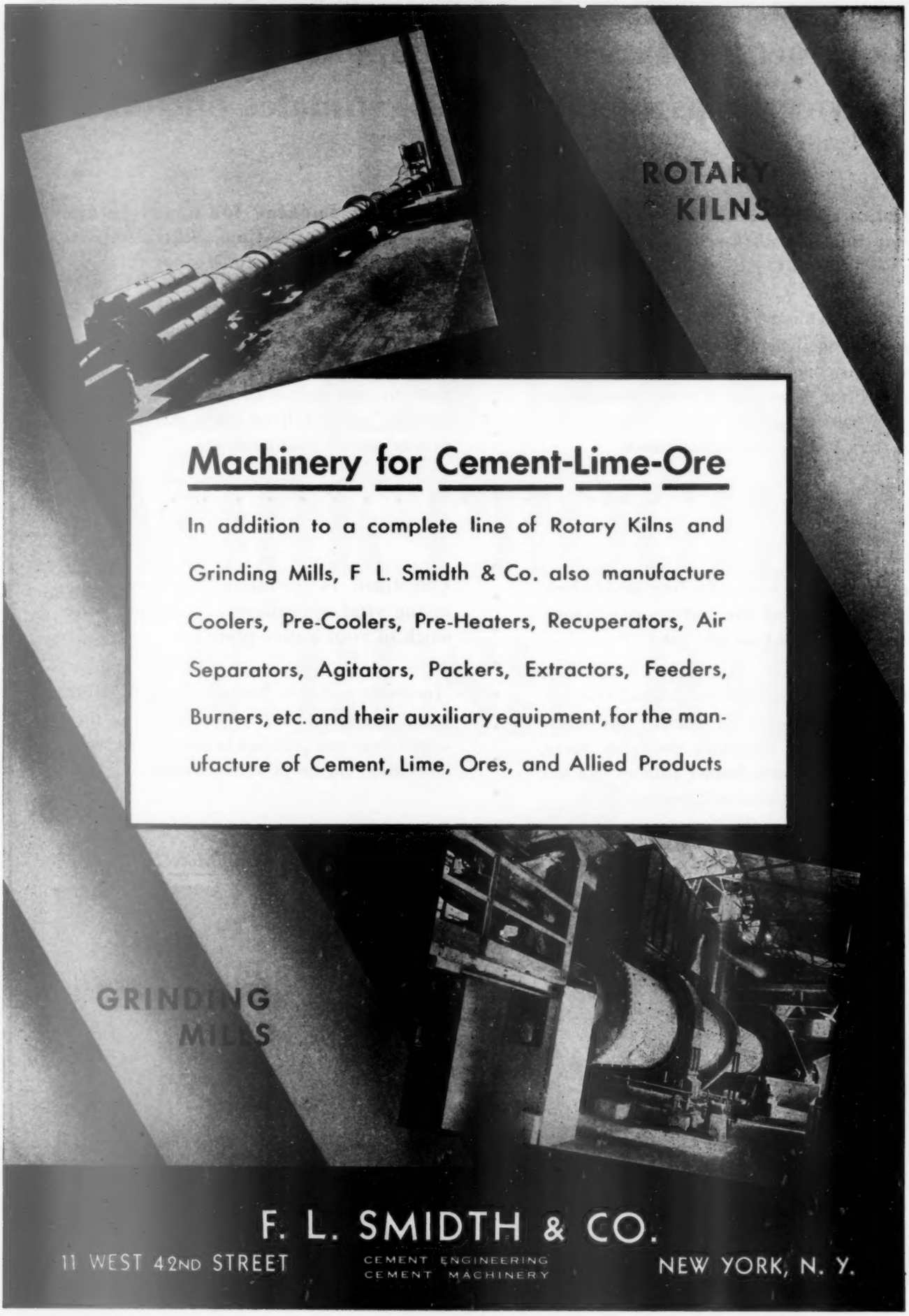
Question: **Is "problem" equipment delaying vital operations . . . stopping the work of your entire plant?**

Answer: Consult Socony-Vacuum! Here again, our Representative can save you time—give your men practical help—call in special lubrication engineers when necessary.

Why Be Satisfied Merely With "Gas and Oil" When You Can Get Complete Service!



Tune in "Information Please"—Monday Evenings, 9.30 E. S. T.—NBC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In addition to a complete line of Rotary Kilns and Grinding Mills, F L. Smidth & Co. also manufacture Coolers, Pre-Coolers, Pre-Heaters, Recuperators, Air Separators, Agitators, Packers, Extractors, Feeders, Burners, etc. and their auxiliary equipment, for the manufacture of Cement, Lime, Ores, and Allied Products
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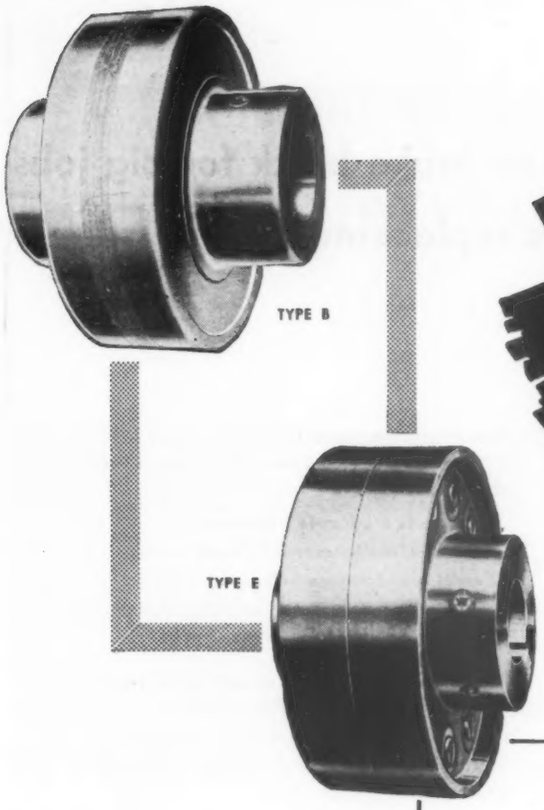
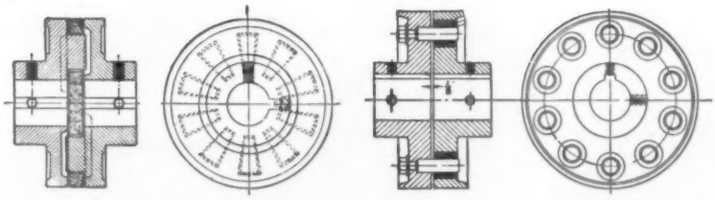


FLEXIBILITY ACCURATE ALIGNMENT SMOOTHNESS

.....with CAST IRON COUPLINGS

by Wood's



Type "B" Coupling—A leather disc between flanges provides flexibility and insulation.

Type "E" Coupling—Steel, rubber-bushed pins absorb shock, afford flexibility and insulation.

There's no charge for

Wood's "OLD TIME *Built-In* QUALITY"

Fans, pumps, small gear reducers and other machines developing medium to light loads, can be smoothly and efficiently direct connected to electric motors by the Wood's Type "B", or "disc" type flexible coupling. This well proportioned, strong, long wearing coupling, takes care of any reasonable misalignment of shafts. It permits shafts to float endwise, without restraint. Special oil or water resistant discs are available for conditions where those elements are present.

For heavy shock loads, particularly for Diesel and gas engine drives, Wood's Type "E" flexible coupling is highly recommended. Power is transmitted through steel pins in self-lubricating bronze bushings, cushioned in rubber. Affording flexibility in all directions, compensating for end float of motor shaft, this coupling acts as a shock absorber and insulator between the two shafts.

During 89 years of service to industry, Wood's products have established a reputation for skillful design, correct selection of materials and careful machining. The result is dependable, trouble free performance.

Send for further information regarding Wood's flexible couplings and other Wood's power transmission equipment.

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Pulleys — Clutches — Hangers — Pillow Blocks
Couplings — Bearings — V-Belt Sheaves
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The new Raybestos

"KEY-LOK"

(PATENTS PENDING)

Slide-on brake block for big jobs makes replacement quick, simple

■ Now you can replace brake blocks on the big jobs with a simple *turn-of-the-wrench!*

Down-time for relining is cut to the minimum. Just "slide off the old and slip on the new"—with Raybestos "Key-Lok" block. You'll save hours . . . because you don't have to remove troublesome bolts, bands or shoes. You're back on the job in a fraction of the time—*and you get the best brake service you've ever had!*

Save time, labor, money . . . get better braking . . . with "Key-Lok." It's available for all your heavy equipment; it's precision-made for each application. See your Raybestos jobber or write us for prices and details.

There's much more to Raybestos "Key-Lok" than the time you save. Here are other advantages:

1. It has up to 6½% more friction surface.
2. No squeak can be caused by loose blocks.
3. Unbroken surface—no bother with plugs.
4. No holes to collect foreign abrasive material.
5. Brakes relined by simply sliding blocks over shoes.
6. Keepers hold blocks to shoe with up to 7 times greater holding power than with bolts.

Raybestos "Key-Lok" means lower cost of brake block maintenance as well as installation.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONNECTICUT

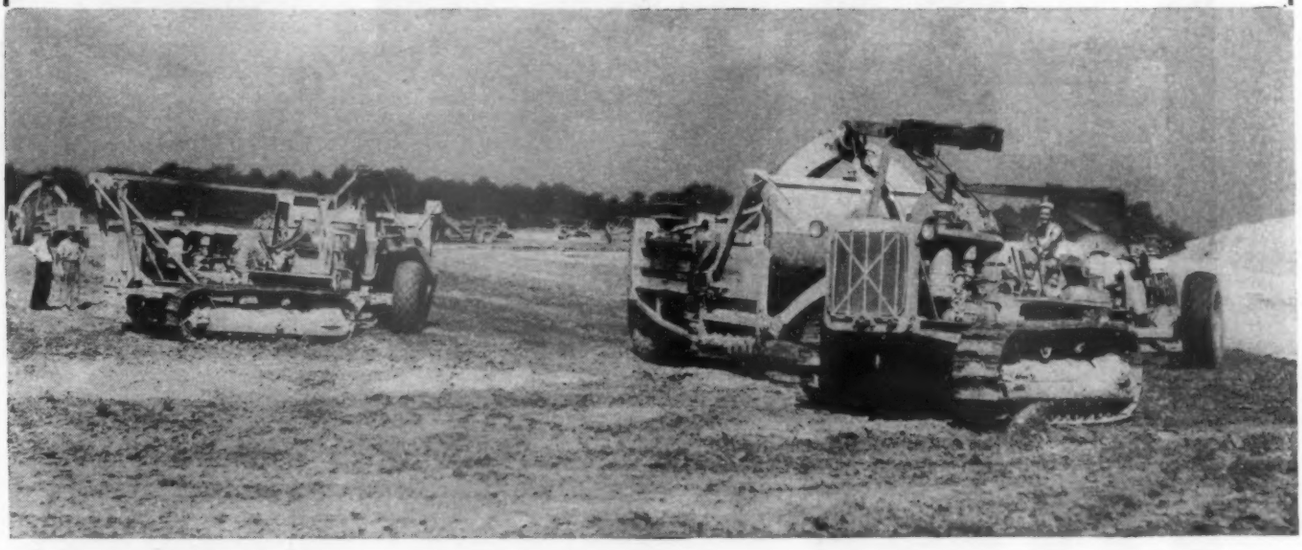
Raybestos

INDUSTRIAL FRICTION MATERIALS

The single source for all four friction materials—Full Metallic, Semi-Metallic, Woven and Molded

"GULF DIESELUBE H.D. keeps our engines clean, helps us get better performance and lower operating costs"—

*says the Contractor on this Airport project**



* Frank Mashuda Company, Mansfield, Ohio, recently completed the grading contract for the $3,000,000 Mansfield Airport project, which required the removal of approximately 2,000,000 yards of dirt. Gulf Dieselube H.D. helped this Contractor keep equipment on the job and operating efficiently.

"GULF DIESELUBE H.D. has done a great job for us," says Frank Mashuda, Contractor on the Mansfield, Ohio, Airport project. "This heavy-duty oil keeps our engines clean—provides the kind of lubrication for both our gasoline and Diesel equipment that means better performance and lower operating costs."

Use Gulf Dieselube H.D. in your equipment and see how it can help you cut down on repairs and overhauls. Take advantage of the extra value you are offered in these four points of superiority in Gulf Dieselube H.D.:

1. Detergent action helps keep motors cleaner.
2. Helps prevent ring sticking and minimizes cylinder wear.
3. Noncorrosive to alloy bearings.
4. Nonfoaming under all temperature conditions.

Gulf Dieselube H.D. is approved and recommended by leading manufacturers for both automotive-type Diesels and for gasoline engines operating under heavy-duty conditions.

For further information on this modern heavy-duty oil, write, wire, or phone your nearest Gulf office today. If you have not yet received your copy of the new Gulf Diesel Lubrication Book, send the coupon below.

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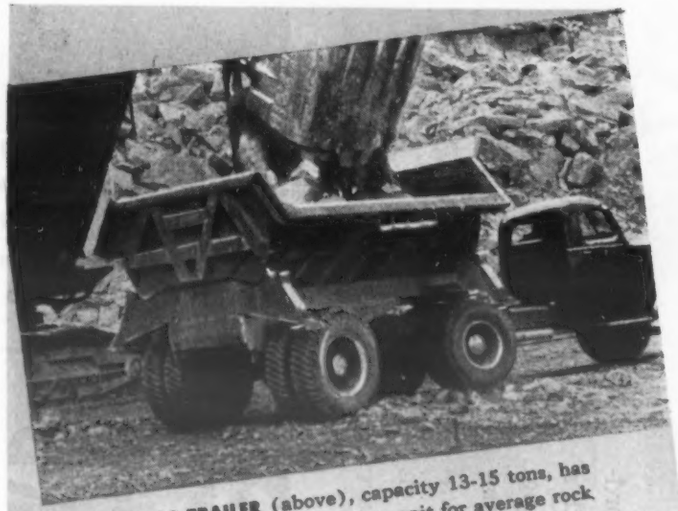


EASTON TR-10 TRAILER (above), capacity 13-15 tons, has proved to be an ideal transportation unit for average rock and ore handling service.

EASTON TR-13 TRAILER (above), capacity 15-17 tons, is delivering bigger payloads at lower cost on several installations.

EASTON TR-15 TRAILER (right), capacity 18-20 tons, is helping to balance plant production costs where big shovel and crusher equipment must be served dependably.

B-1021

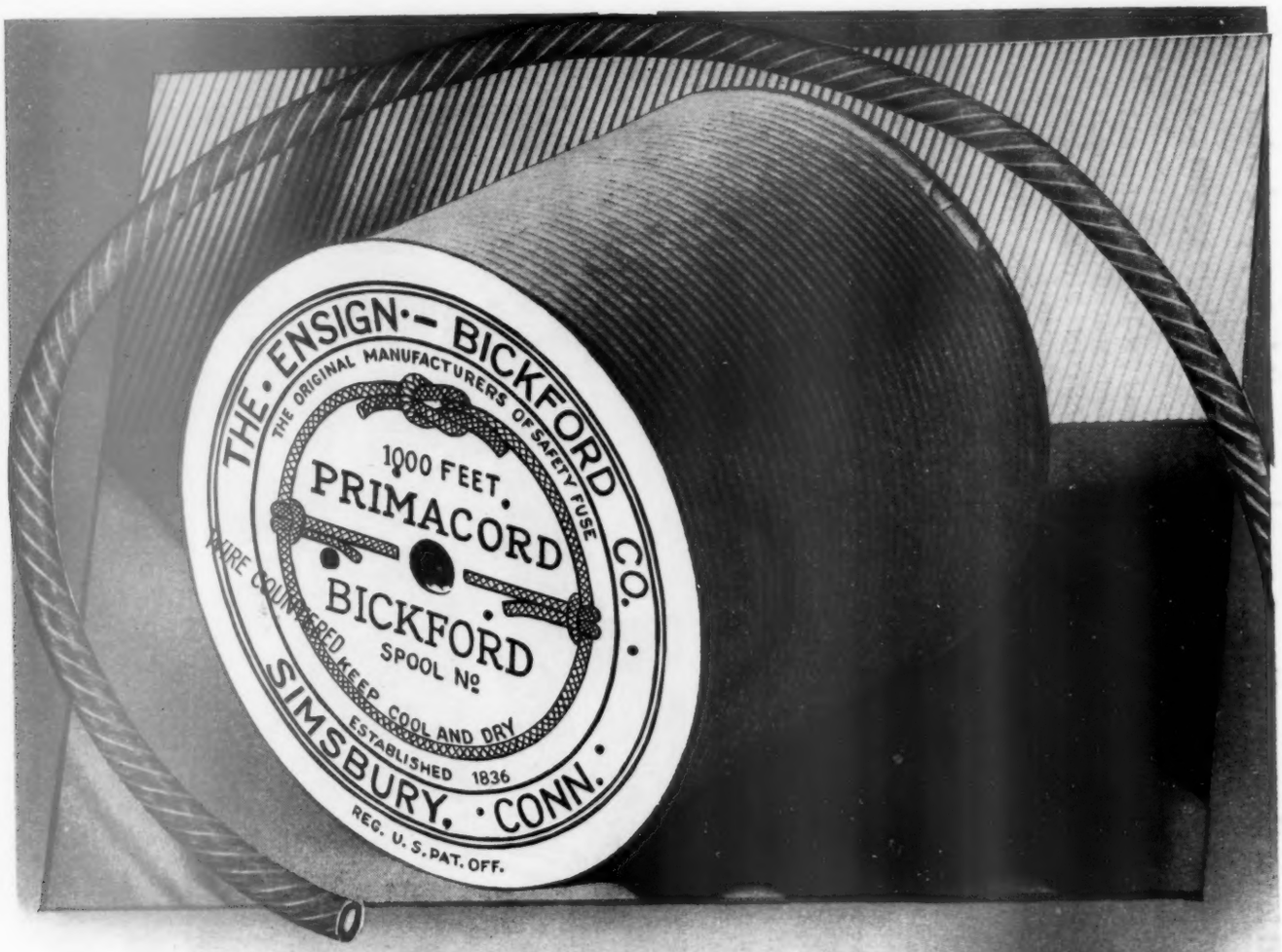
You can expect lower plant operating costs and more satisfactory production from the moment you put the right containers into your haulage system . . .

Your haulage problem is different—because your entire plant layout, your shovels, your crushers, and your production requirements are different. The most important step in setting up your transportation system is to put the *right containers* under your shovel dippers and at your dumping point. In either track or trackless haulage the wrong type and size of container will throw the rest of your plant layout out of balance.

We should like to point out that an increasing number of leading operators have already modernized their haulage by changing over to EASTON TRAILERS. The most popular models are the EASTON TR-10, TR-13 and TR-15, ranging from 13 to 20 tons payload capacity. These models feature the EASTON PHOENIX side-dump, doorless container.

An EASTON PHOENIX TRAILER may be the right answer for you—or you may require a special type of EASTON-engineered container for track, truck or tractor haulage. For a practical engineering recommendation on the *right* size, type and number of containers for your plant we suggest that you write for your free copy of the new EASTON Transportation Statement, Form 176. Write or call to: Engineering Counsel, Easton Car & Construction Co., Easton, Pa.

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.



Now Available . . .
Wire Countered Primacord

For extra deep, well-drilled holes we recommend Primacord-Bickford Wire Countered Detonating Fuse. It is made with a brass wire binding covered with cotton yarn and wax coating. This wire countering increases the tensile strength of Primacord to 220 pounds, and also makes it more resistant to abrasion. It weighs only 35 pounds per thousand feet: packed on wooden spools it is easy to handle in the field . . . ideal for use where the going is tough.

Primacord-Bickford Detonating Fuse is made in two other standard types: Plain Primacord, for shallow holes, and for all surface trunk lines; Reinforced for deep holes where tensile strength is needed.

THE ENSIGN-BICKFORD COMPANY • SIMSBURY, CONNECTICUT

IT'S THE TRUTH!

Primacord has developed a new technique in blasting.

Also
ENSIGN-BICKFORD SAFETY FUSE
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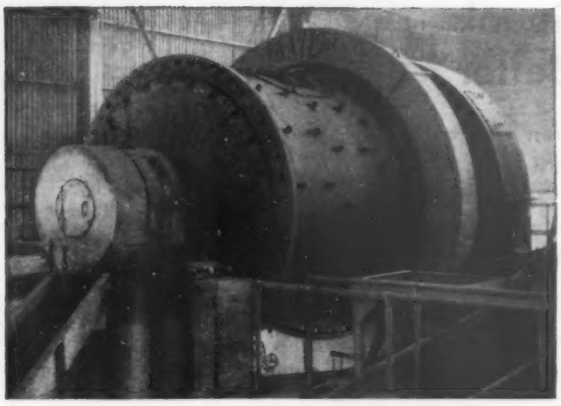
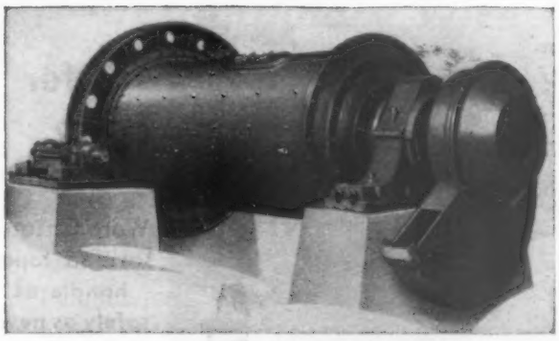
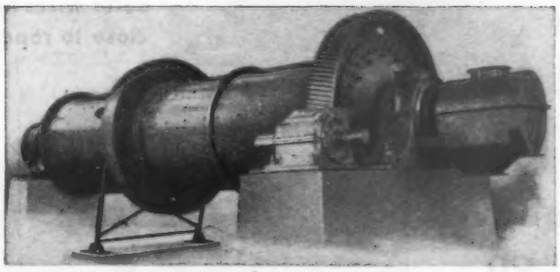
CONFIDENCE AND SATISFACTION







. . . in the performance of Traylor Grinding Mills. That's why engineers have specified them, during the past twenty years and more, for new cement, lime, and process plants as well as for old plants undergoing expansion and modernization.

Whether your grinding needs call for a "coarse," "medium," "fine," or "extra fine" product, there is a Traylor Mill to give you the most satisfaction. Traylor Mills will deliver the quantity you need, of the exact character required at minimum unit cost and low maintenance expense.

Traylor is qualified and equipped to build Grinding Mills of standard types or specially designed to fit your needs.

Our technicians are available at any time. Write us for appointment or—

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BULLETIN 2103

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Rotary Kilns	Grinding Mills
Rotary Coolers	Ball Mills
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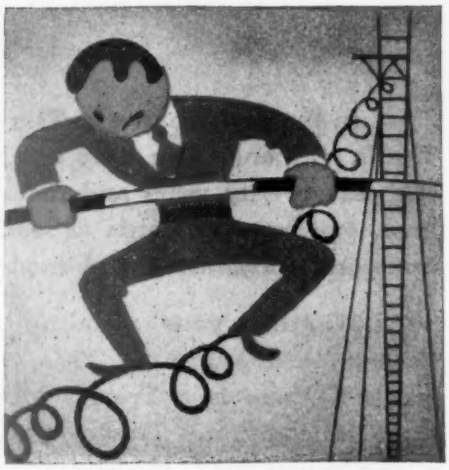
For Money In Your Pocket
PERFORMANCE . . .

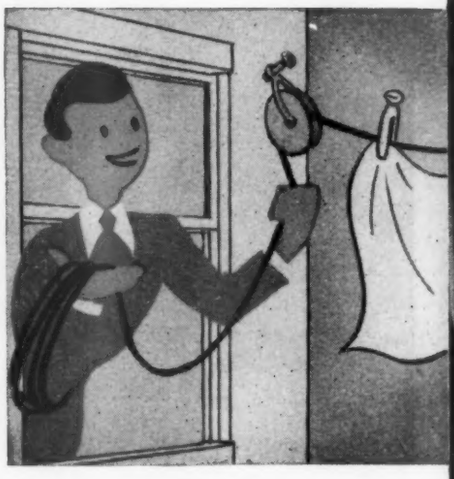
Resists Kinking

Being free from internal stress, it is always easy to handle—never fights back.



Spools Better

Even with a light load, it spools uniformly—is never cranky.



Takes Reverse Bends

Takes this "fatigue" much better, as on rope-ruining elevator installations.

Safer to Handle

Worn union-formed ropes handle as safely as new, as broken outer wires lie close to rope.

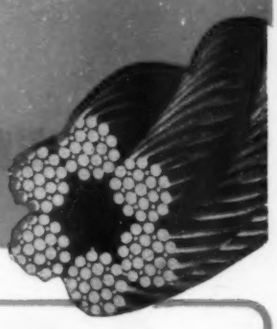
Always Relaxed

While it is flexible, and pliant, it has the "toughness" to withstand strain and weight.

Behaves on Grooves

Resists rotating or twisting in sheave grooves because wires are Preformed.

. . . Specify



union-formed

(preformed)

THE ULTIMATE IN LOW COST WIRE ROPE

Precision Constructed to OUTPERFORM *ordinary Wire Rope*

FIGHT! FIGHT! There is an exhausting fight going on all the time in ordinary wire rope. Each wire is fighting constantly to get out of the fixed position into which it is forced without any preliminary training to put it in shape. This internal fighting spoils the performance, cuts it short, doesn't give you a run for your money.

In **union-formed** Wire Rope each wire is put in shape (*Pre*formed) before it ever touches another wire in the rope. The result is exactly the same that comes from a set of conditioned muscles, i. e. finer coordination, greater endurance, top-flight kind of performance that does not let you feel out-of-pocket.

Yes sir! You will always get the most out of the best. The little extra you invest for the best is the part of your investment which will bring the pay-off—yield the most dividends. Prove this fact to your own satisfaction. *Specify* **union-formed**—get money-in-your-pocket performance.

union *Wire Rope*

UNION WIRE ROPE CORPORATION

2132 Manchester Avenue Kansas City 3, Missouri

Tulsa 3 Houston 11 Chicago 6 Salt Lake City 13 New Orleans 16

Monahans, Tex. Portland 10, Ore. Ashland, Ky. Atlanta 1

NEW CHALLENGE *Confronts Road Builders*

The first challenge came in 1919—first full year after first World War.

That year Americans en masse decided that the automobile was more than a pleasure vehicle—that it was a necessity—the means of transporting them to horizons of greater freedom.

That year we had 6 million automobiles—virtually no surfaced roads. Oregon passed the first gasoline tax law. The Federal Government paid out nearly 3 million dollars to help pay for state road systems.

All states acquired highway departments and passed gasoline tax laws. Planned road building got under way. Road builders met the challenge—got us out of the mud. In ten years we had 23 million motor cars—the life of Americans was transformed—became mobile.

Then, in a 7-year period more than a half billion dollars of state highway funds were diverted for such things as the dole—enough to build 20,000 miles of highway.

New construction was cut deeply. Stymied highway departments lost initiative. Shrunken road building organizations were further drained by the draft and war traffic took a terrific road toll.

But not until war stopped production, did people stop buying cars to boost the total to 33 million.

The first full year after World War II finds us with three-fourths of our roads alternatingly dust or mud, while in urban areas we're driving bumper to bumper at a pace not much faster than in the old horse and buggy days.

Up To Road Builders To Start One of Nation's Largest Industries On The Move Again

A half billion round Federal dollars are earmarked but can't roll into roads until State, County and Municipal plans are completed and legislative bodies vote matching funds.

Every American has a stake in road building. A seventh of all workers have a big stake because their livelihood depends upon it.

All America now looks to State, County and Municipal highway and street departments to enlarge their professional organizations to speed up plans; to legislative bodies to provide undivertible revenue to match Federal funds; to the raw materials producers to expand output; to the makers of machinery for more and better equipment and to the road contractors to mobilize greater forces and efficient equipment.

This is The Challenge of 1946. To meet it calls for the **Active Cooperation** of every profession and industry having a part in road building. Let's meet that challenge head on.

END THIS GREASE PUMP GRIEF!

Revolutionary* "Padl-Pak" action of the new "Minit" Lubricator pumps the container empty without a sputter. No hand priming.

NO GASKETS—NO PACKINGS *Ask us about it*

*"IT PADDLES AND PACKS AS IT PUMPS"

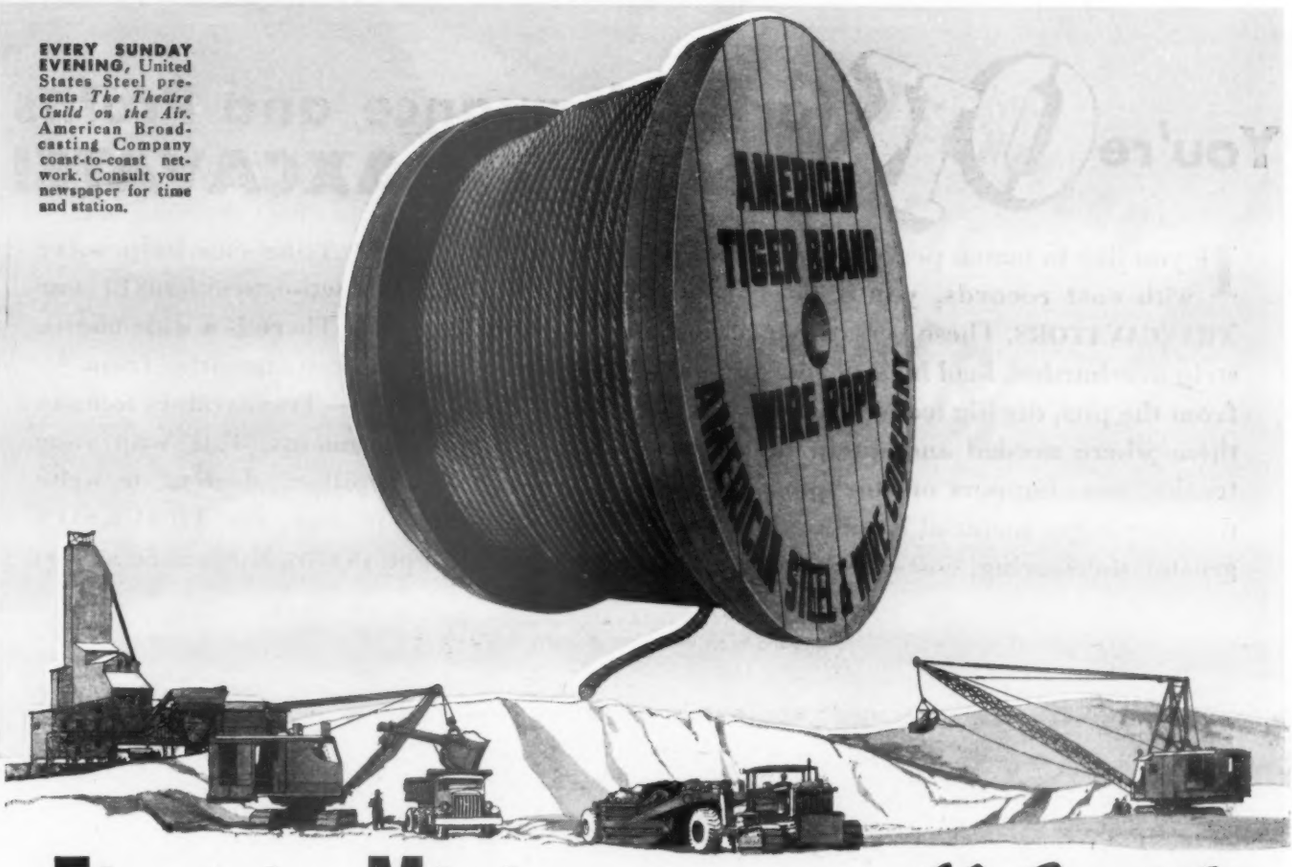
BALCRANK

BALCRANK INC., CINCINNATI 9, OHIO

"LUBRICATION LEADERSHIP SINCE 1906"

Pump patented.
Name, trademark, slogan, copyrighted.

EVERY SUNDAY EVENING, United States Steel presents *The Theatre Guild on the Air.* American Broadcasting Company coast-to-coast network. Consult your newspaper for time and station.



First in Mining— *on all Counts*

MADE by the world's largest manufacturer of wire rope, U·S·S American TIGER BRAND has the stamina to handle the toughest mining job.

This superior wire rope is made of high tensile wire from select U·S·S Steel. It is extra strong, extra tough, extra flexible.

In the Excellay Preformed construction, TIGER BRAND is easy to handle . . . can be installed quickly . . . has less tendency to loop or kink . . . requires shorter breaking-in time. It hugs sheave grooves and drums at all speeds . . . has highest resistance to bending fatigue. It is safer to use because crown wires lie flat and in place when broken . . . jagged wires do not stick out to injure handlers. TIGER BRAND Excellay Preformed construction means each wire and strand carries its full share of the load to stand up under long, hard service.

You can depend on TIGER BRAND to help reduce maintenance and replacement costs . . . to help you do a more efficient job in every operation requiring wire rope . . . for back of every reel of TIGER BRAND are the vast research, engineering and production resources of the United States Steel Corporation. You can't buy finer wire rope at any price. So, get in touch with your nearest TIGER BRAND Wire Rope supplier now.

Excellay Preformed

AMERICAN STEEL & WIRE COMPANY
Cleveland · Chicago · New York

COLUMBIA STEEL COMPANY
San Francisco

Tennessee Coal, Iron & Railroad Company, Birmingham, *Southern Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

USS AMERICAN TIGER BRAND WIRE ROPE UNITED STATES STEEL

U·S·S AMERICAN

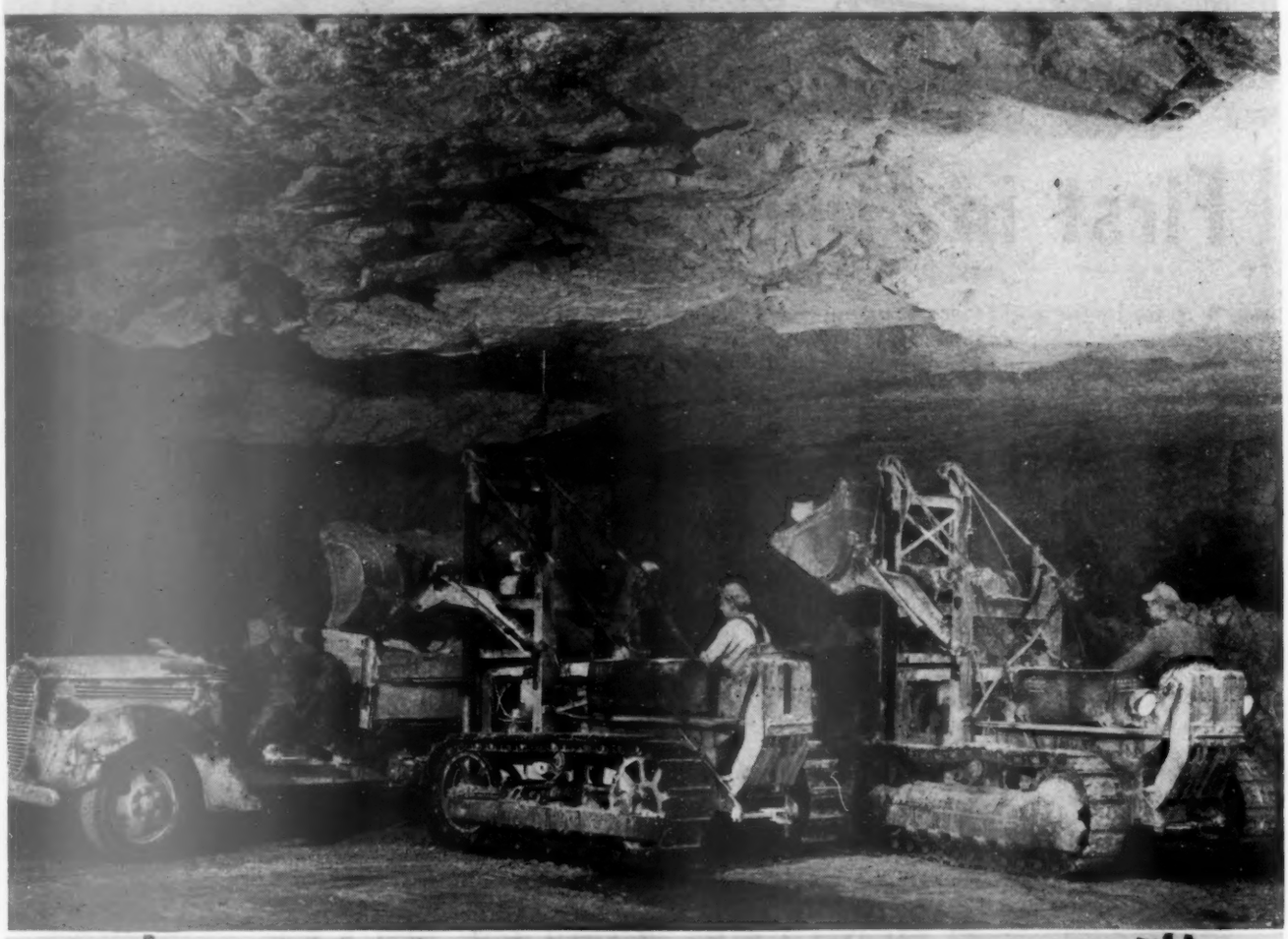
TIGER BRAND *Wire Rope*

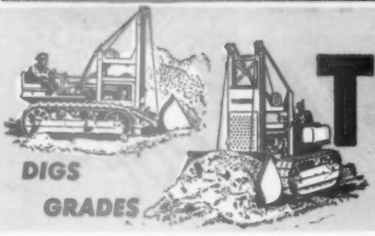
You're OK for Performance and Profits when you TRAXCAVATE!

IF you like to match performance records with cost records, you'll approve of TRAXCAVATORS. These versatile machines strip overburden, load blasted rock or sand from the pits, dig big loads with ease, carry them where needed and dump them into trucks, cars, hoppers or stockpiles — and do many other material handling jobs with greater time-saving, cost-cutting efficiency.

Perhaps TRAXCAVATORS can help solve manpower and production problems in your pit, quarry or plant. There is a wide choice of models with bucket capacities from ½ to 2½ cubic yards — Traxcavators to meet all of your requirements. Talk with your TRACKSON-"Caterpillar" dealer, or write for the complete story to TRACKSON COMPANY, Dept. PQ-36, Milwaukee 1, Wis.

Two Model T4 TRAXCAVATORS loading shot limestone in an underground quarry in Illinois.

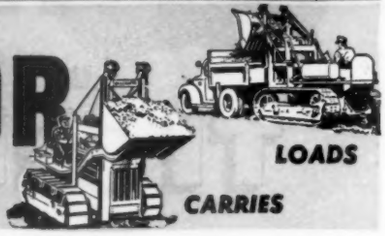


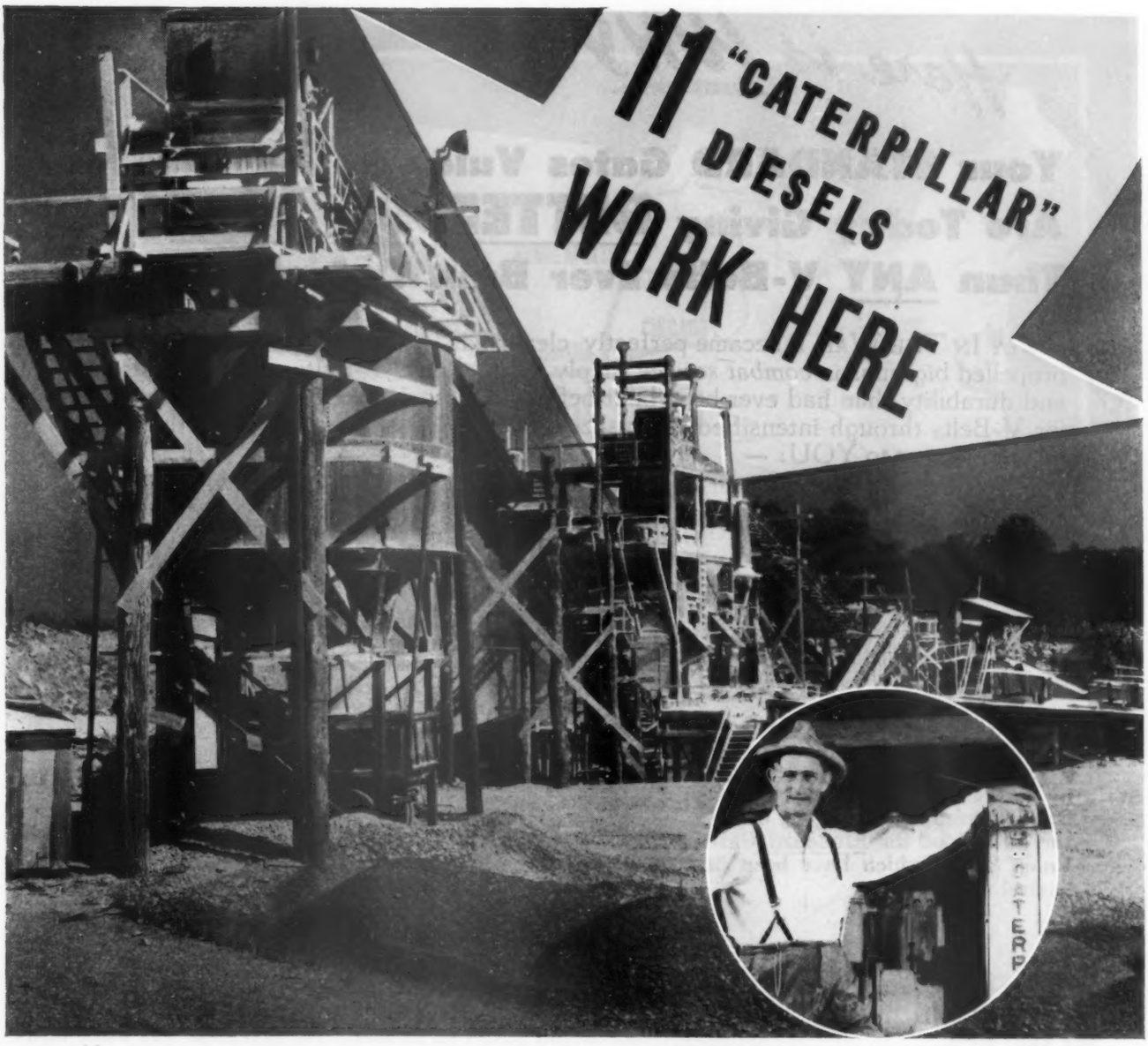


TRAXCAVATOR

REG. U. S. PAT. OFF.

THE ORIGINAL TRACTOR EXCAVATOR





E. H. Kerr, plant superintendent, minces no words in expressing his opinion of "Caterpillar" Diesels: "Best Diesel I ever had. Never had any trouble – never missed a day, even when running day and night. Wouldn't trade for any other make."

Ten engines and one 'dozer-equipped tractor make this a 100 per cent "Caterpillar" Diesel-powered limestone-crushing plant near Bloomington, Ind. A number of the engines have reached working records of more than 10,000 hours. Which some operators might consider a reasonable service life for a power unit under the tortures of grit and dust.

But "Caterpillar" Diesels are virtually youngsters at that age. They have the most thorough protection against grit and dust any Diesel engine ever had. Modern, "Caterpillar"-designed dust seals, and oil, fuel and air filters, guard every possible entrance to the wearing surfaces inside these "super"-efficient power-plants. This, plus all-round ruggedness, makes "Caterpillar" Diesels the ideal power for crushers and gravel plants.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR DIESEL ENGINES

REG. U.S. PAT. OFF.

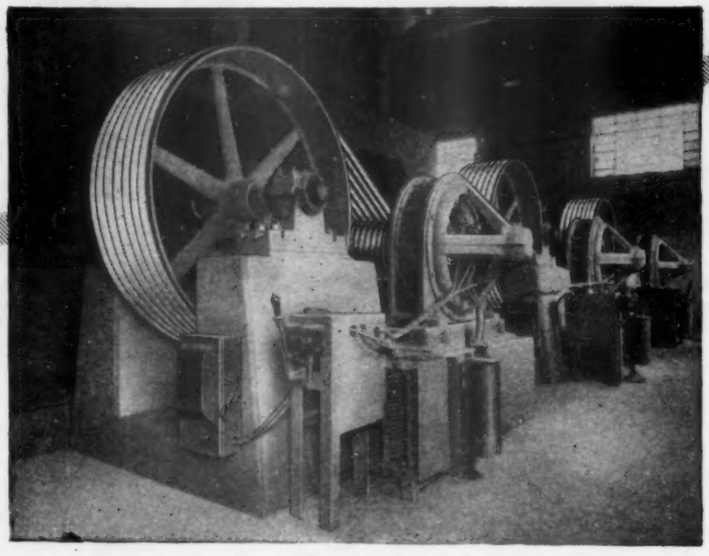
TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

The discharged veteran wears this emblem. Remember his service and honor him.

Here is **WHY**

Your STANDARD Gates Vulco Ropes Are Today Giving BETTER SERVICE Than ANY V-Belts Ever Built Before!

EARLY IN THE WAR, it became perfectly clear that Army tanks, tractors and self-propelled big guns in *combat service* simply *had* to have V-Belts of greater strength and durability than had ever been built before. Gates developed these greatly superior V-Belts through intensified, specialized research — and here is why this fact is now important to YOU: —



✓ **Every Improvement developed by Gates for these Army V-Belts has also been added, day by day, to the quality of the Standard Gates Vulco Ropes which have been delivered to you.**

All Gates V-Belts are Built with *The Patented*

This is one of the very few instances in which improvements developed primarily for military use could be passed on immediately to you. Ordinarily, *you* would have had to wait. An exception was made in the case of Gates V-Belts because it was recognized that industry needed the best possible V-Belts in order to achieve the greatest possible production —and maximum production was vitally essential.

That is why Gates has been able to pass on to you, day by day, every V-Belt improvement developed for our armed forces during the war—and that is why your *Standard* Gates Vulco Ropes are today delivering far better service than *any* V-Belts ever built before!

Gates

THE MARK OF SPECIALIZED RESEARCH

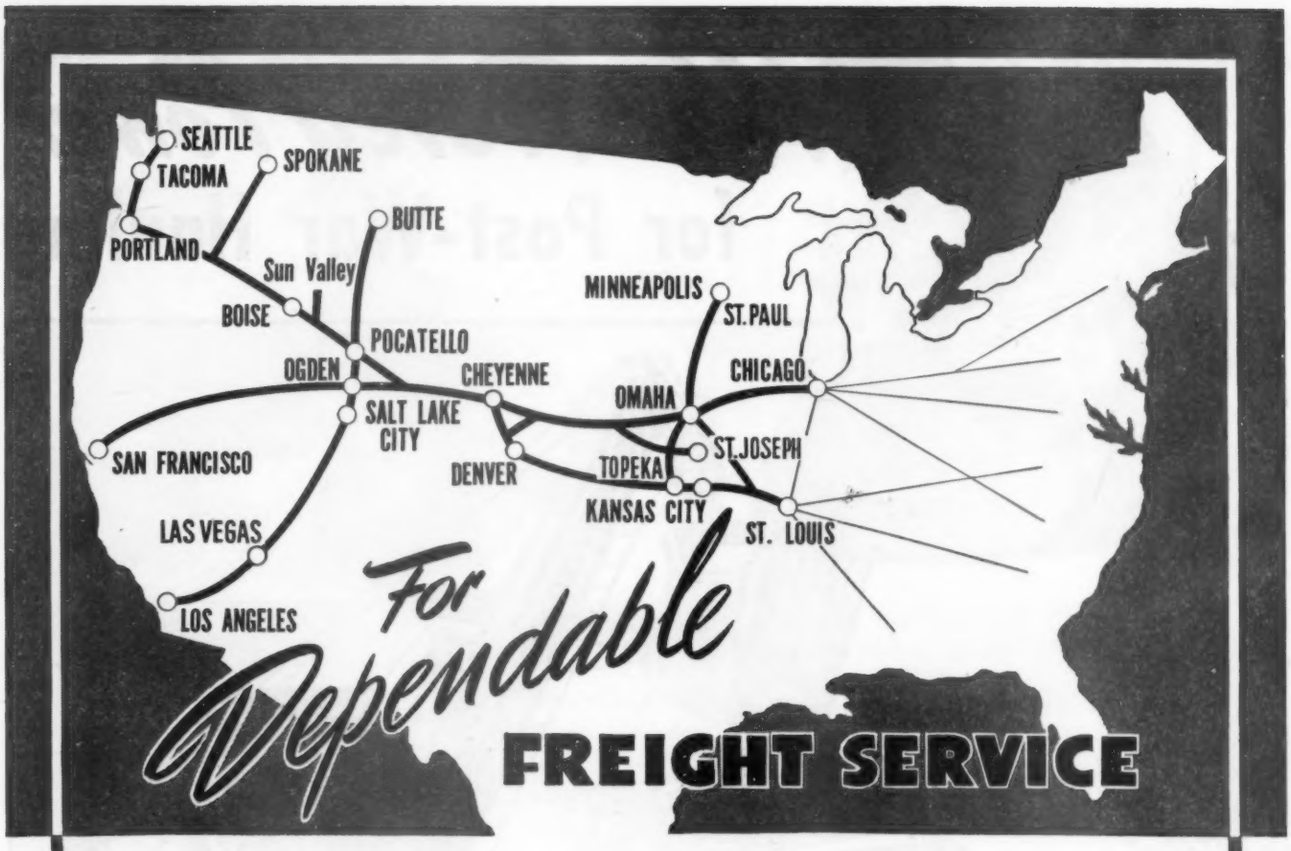
THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

463

GATES VULCO ROPE DRIVES

CHICAGO 6, ILL., 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue. ATLANTA 3, GA., 521 C. & S. Nat'l Bank Bldg.
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway. DETROIT 2, MICH. 223 Boulevard Bldg.
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL., 170 Ninth St.



FOR ALL SHIPPERS—the Union Pacific Railroad provides . . .

A Strategic Middle Route that unites the East with the Mid-West, Intermountain and all Pacific Coast states.

Modern operating facilities, equipment and motive power include the famous "Big Boys," super-powered locomotives designed to meet industry's heaviest demands.

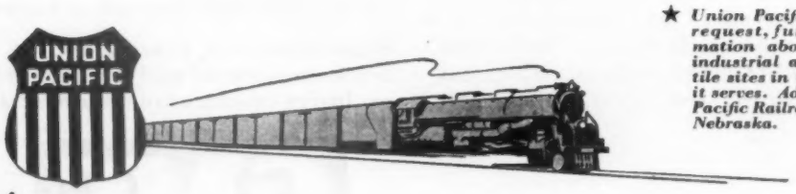
Union Pacific also has long been renowned for its well-ballasted steel highway, specially constructed for smooth, safe operation of freight traffic at high speed.

General agency offices are located in metropolitan cities, coast to coast, with a staff of experienced traffic men trained to assist you and other shippers in effectively meeting your transportation problems.

For dependable, on-the-job freight service—

Be Specific— say "Union Pacific"

★ *Union Pacific will, upon request, furnish information about available industrial and mercantile sites in the territory it serves. Address Union Pacific Railroad, Omaha, Nebraska.*



The Progressive

UNION PACIFIC RAILROAD

The Strategic Middle Route

War-Proved Power
for Post-War Hauling

Heavy Duty GMCs are "made to order" for all kinds of heavy hauling jobs. On or off the highway, you can count on GMCs to provide peak performance and pulling power.

Patterned after the powerplant used in nearly 600,000 GMC military vehicles, GMC valve-in-head engines have been battle-tested, war-proved and improved. GMC heavy duty engines are famous for such features as Turbo-Top pistons, stellite faced exhaust valve seat inserts, full pressure lubrication, full length water jackets and 7-bearing crankshafts with steel-backed, precision-type bearings.

Ruggedness and stamina are built into every feature of GMC chassis. Heavy duty clutches . . . five-speed, synchro-mesh transmissions . . . power hydraulic or air brakes . . . dual-performance, double reduction or worm drive axles...add super strength to heavy duty GMCs.

Remember, too, every GMC, ½ to 20 tons, is truck-engineered and truck-built by the largest exclusive producer of commercial vehicles.

THE TRUCK OF VALUE **GMC TRUCKS** **GASOLINE • DIESEL**

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

HERE'S WHY YOU CAN SAVE MONEY BY REDUCING

Shorts and Overloads

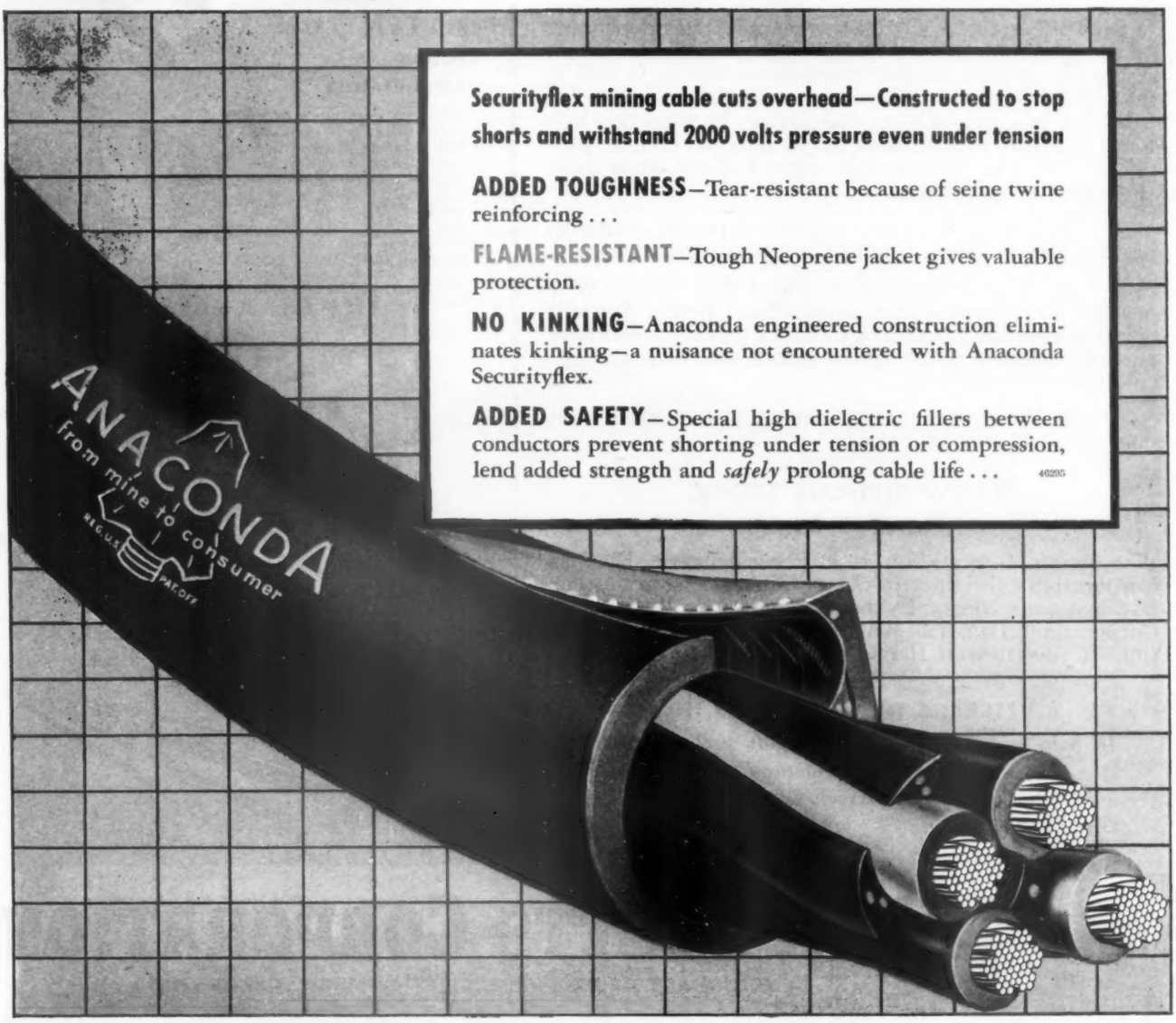
Securityflex mining cable cuts overhead—Constructed to stop shorts and withstand 2000 volts pressure even under tension

ADDED TOUGHNESS—Tear-resistant because of seine twine reinforcing . . .

FLAME-RESISTANT—Tough Neoprene jacket gives valuable protection.

NO KINKING—Anaconda engineered construction eliminates kinking—a nuisance not encountered with Anaconda Securityflex.

ADDED SAFETY—Special high dielectric fillers between conductors prevent shorting under tension or compression, lend added strength and *safely* prolong cable life . . . 40295



ANACONDA *Securityflex* **CABLE**

ANACONDA
from mine to consumer

READY TO FABRICATE SURPLUS

aluminum

AT 15% TO 45% LESS
(FOB Location)

GOVERNMENT-OWNED STOCK

Here—in production quantities—is the aluminum you need at fixed prices, 15% to 45% off current mill prices, depending on the particular alloy. Much of this special value stock, originally ordered for war plane construction, is still in its original packing. It may be readily fabricated and is available in standard sizes and shapes. Perhaps this material is just what you need to get into full civilian production faster and it costs nothing to find out. Take these three simple steps today:

1. Estimate, for any convenient period, your production needs in each specification, finish, gauge, etc.

2. Then write, wire, or phone that data to your nearest War Assets Corporation office* below. We will advise you of the location of the stock you need, estimate possible delivery dates, quote prices and help arrange credit where indicated.

3. When satisfactory arrangements have been made, we will start shipments.

*NEW SURPLUS STOCK RELEASED DAILY

War Assets Corporation is a Reconstruction Finance Corporation subsidiary in charge of disposing of surplus war materials constantly being released to War Assets Corporation. To reach War Assets Corporation, simply contact your nearest R.F.C. office listed below.

VETERANS OF WORLD WAR II:

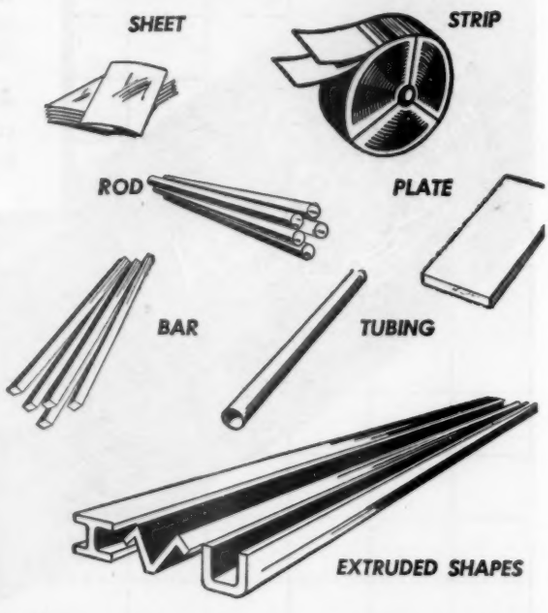
To help you in purchasing surplus property from War Assets Corporation, a veterans' unit has been established in each War Assets Corporation Regional Office listed below.

ATTENTION

POWDER METALLURGISTS!

Atomized Aluminum powder —not suitable for paint without further processing—is available in enormous quantities at 10¢ per pound. Can you find a major use for this product? If you can.....!!! Get detailed specifications from your War Assets Corporation office listed below.

TYPES AVAILABLE



A DISPOSAL AGENCY DESIGNATED BY THE SURPLUS PROPERTY ADMINISTRATION for Surplus Producers' and Capital Goods, Aircraft and Plants formerly handled by Reconstruction Finance Corporation . . . and for Surplus Consumer Goods formerly handled by United States Department of Commerce.

WAR ASSETS CORPORATION

(A SUBSIDIARY OF RECONSTRUCTION FINANCE CORPORATION)

RFC OFFICES (INCLUDING FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES) LOCATED AT: Atlanta • Boston • Chicago • Denver • Kansas City, Mo. • New York • Philadelphia • San Francisco • Seattle • OTHER RFC SURPLUS PROPERTY OFFICES LOCATED AT: Birmingham • Charlotte • Cleveland • Dallas • Detroit • Helena • Houston • Jacksonville • Little Rock • Los Angeles • Louisville • Minneapolis • Nashville • New Orleans • Oklahoma City • Omaha • Portland, Ore. • Richmond • St. Louis • Salt Lake City • San Antonio • Spokane • OTHER FORMER DEPARTMENT OF COMMERCE REGIONAL SURPLUS PROPERTY OFFICES LOCATED AT: Cincinnati and Fort Worth

157-3

One Name-ALL TYPES

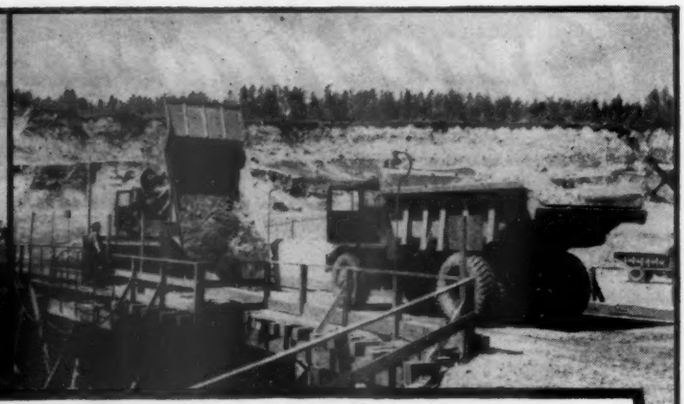
In fact, Phillie Gear was one of the true Pioneers in the design and manufacture of *Speed Reducers, for Industrial Purposes.*

For every conceivable type of Industrial Drive, there is a correct type of Philadelphia Speed Reducer—and by choosing Philadelphia Reducers, you not only secure *Quality Products,* but you place the responsibility for their construction and operation with *one manufacturer* (a point worthy of serious consideration).

Philadelphia GEAR WORKS INCORPORATED

ERIE AVE. AND G ST., PHILADELPHIA 34, PA. NEW YORK · PITTSBURGH · CHICAGO
IN CANADA: WILLIAM & J. G. GREEY LIMITED, TORONTO

Industrial Gears and Speed Reducers
LimiTorque Valve Controls



In Mines and Quarries

EUCLIDS

move thousands of EXTRA tons every month

● Built for tough off-the-highway hauling, Rear-Dump and Bottom-Dump EUCLIDS have stepped up production noticeably and reduced hauling costs on scores of open-pit mining and quarry operations. Here are some of the more important reasons for the *plus* performance of Euclids:

Rugged simplicity — Designed for dependable performance as well as appearance, there are fewer wearing parts; maintenance costs and down-time for repairs are reduced to a minimum.

Capacity — Euclid models have payload capacity ranging from 15 to 30 tons; favorable ratio of unit weight to payload capacity means more pay tons hauled on every trip.

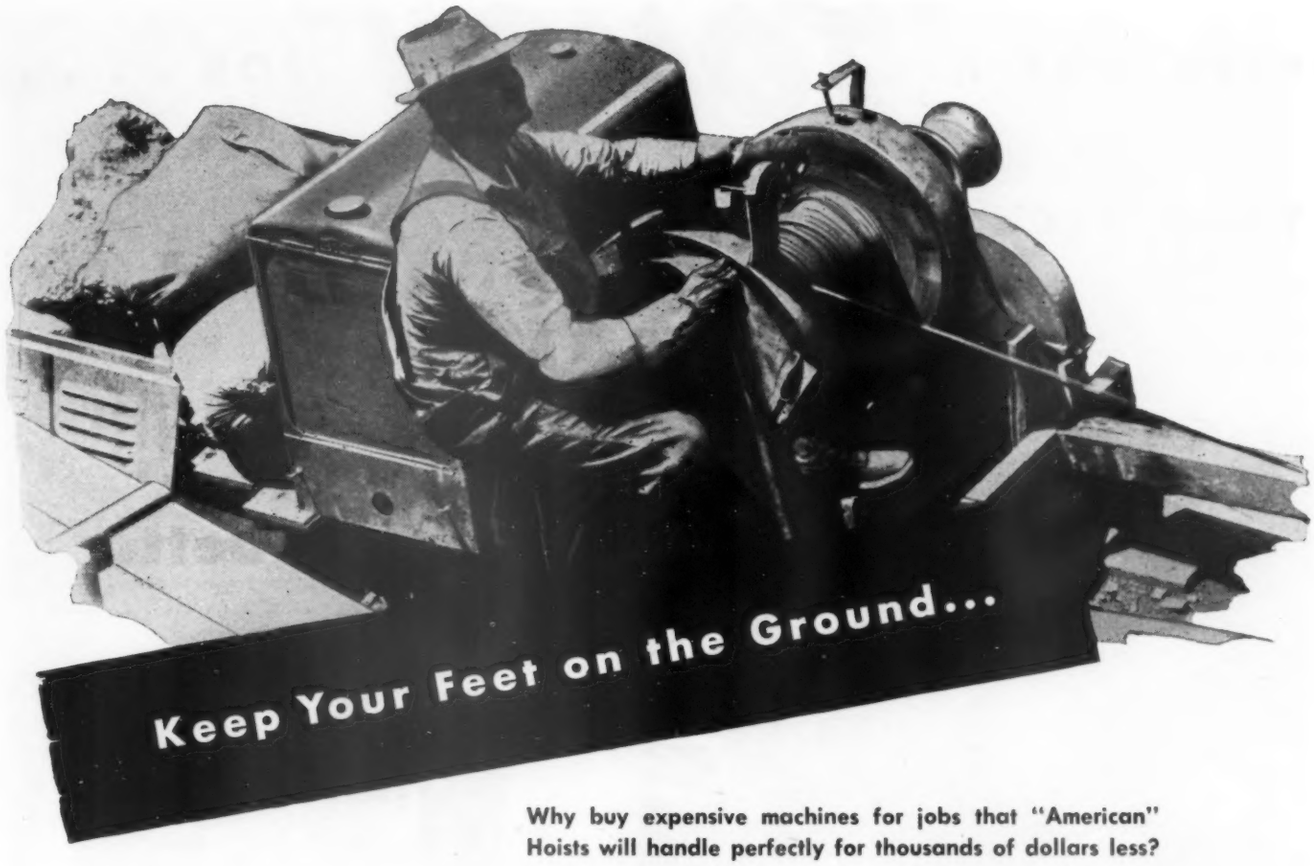
Speed — top speeds loaded of 21.8 to 34.4 m.p.h., depending on model; fast travel time results in many more pay load trips per hour than can be made with slower equipment.

Versatility — Efficient for hauling any material on any length haul; handle overburden, rock, coal, ore and other materials loaded by shovels, draglines, transfer bins, mobile loaders and other modern digging and loading equipment.

If you are interested in increasing your production and profits, check Euclid performance on any job, and write for complete information.

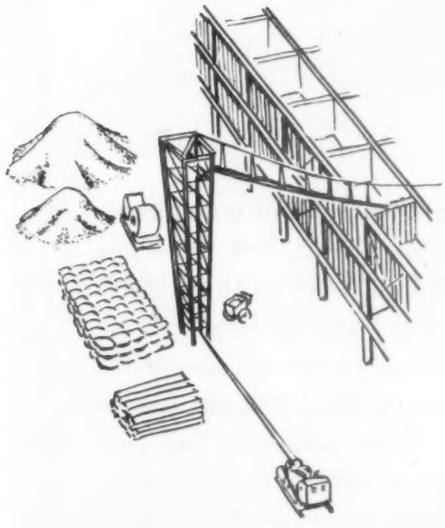
The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO

EUCLID SELF-POWERED HAULING EQUIPMENT
For EARTH ROCK COAL ORE



Why buy expensive machines for jobs that "American" Hoists will handle perfectly for thousands of dollars less?

Modern cranes, shovels, conveyors, etc., have their own job applications. We build cranes ourselves, BUT there are thousands of jobs where an "American" Hoist is adequate—*often better*—and involves a much smaller investment.



The five models of "American" General-Purpose Hoists cover almost every requirement up to 5 tons. Of welded construction, they're strong, rugged, long lasting. They're easily controlled, easily adjusted, easily accessible. They're remarkably flexible, too —a one-drum unit can be expanded in the field to a three-drum unit with slewing attachment!

"American" also builds Air-Controlled Contracting Band Hoists up to 25,000 lbs. capacity and Derricks of all types—Stiffleg, Guy Rope, Gallows Frame, Tower, Barge, Steel Erector. See your nearest "American" Distributor or write us.

American

HOIST & DERRICK CO.

St. Paul 1, Minnesota

CHICAGO NEW YORK SAN FRANCISCO

PICK OUT A "TOUGH" JOB . . . .

THEN PICK A GENERAL . . . . . .

. . . . . TO DO THAT JOB

faster

. . . . . .

better

. . . . . .

cheaper

. . . . . .

. . . . . .

. . . . . .

You know the kind . . . that job on which you've never been able to get production up where you'd like it . . . the one that's been "raising Ned" with your present equipment! That's the kind of a job where a GENERAL really stands out!

You've got a job like that . . . where operating conditions are especially bad . . . where usage is exceptionally severe. The record proves that GENERALS can take punishment, day after day, and still turn in a creditable performance: 98% OF ALL THE GENERAL MACHINES EVER BUILT ARE STILL IN SERVICE! That's a record worth thinking about in planning the purchase of new equipment. It's a record that proves a GENERAL can handle *your* job—faster, better, cheaper. See your nearest distributor or write to us direct today for the complete details . . . you'll find them both interesting and helpful.

THE OSGOOD COMPANY
SHOVELS, DRAGLINES
CRANES
CRAWLER & WHEEL MOUNTS
DIESEL, OIL, GAS, ELECTRIC

Associated with The Osgood Company

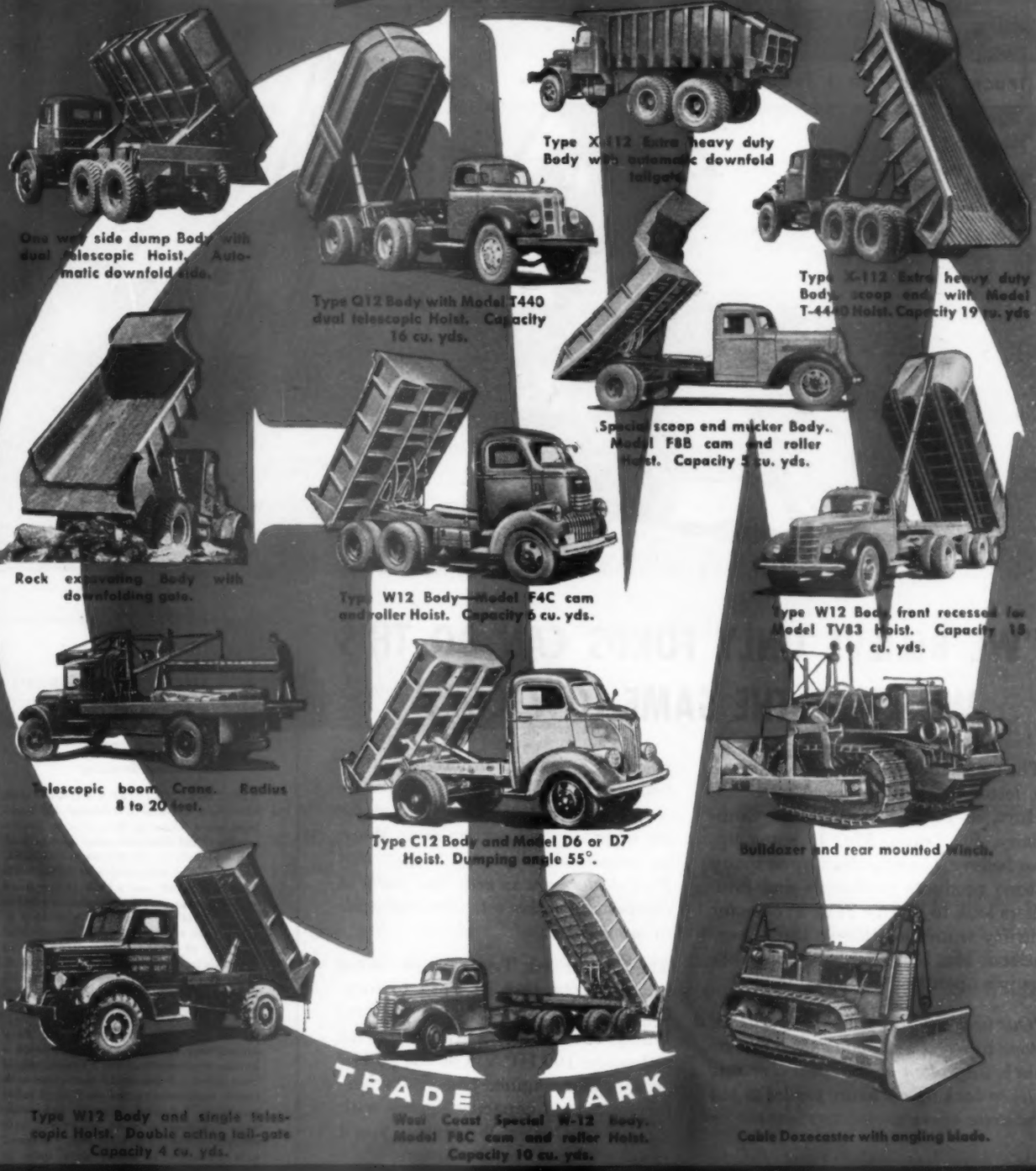
GENERAL EXCAVATOR CO.

CRANES-SHOVELS GENERAL MARION OHIO U.S.A. OSGOOD

MARION, OHIO

GENERAL
CRANES, DRAGLINES
AND SHOVELS
DIESEL, GAS, ELECTRIC

BETTER BUILT FOR BEST PERFORMANCE



One way side dump Body with dual telescopic Hoist. Automatic downfold side.

Type Q12 Body with Model T440 dual telescopic Hoist. Capacity 16 cu. yds.

Type X-12 Extra heavy duty Body with automatic downfold tailgate.

Type X-112 Extra heavy duty Body, scoop end, with Model T-440 Hoist. Capacity 19 cu. yds.

Special scoop end mucker Body. Model F8B cam and roller Hoist. Capacity 5 cu. yds.

Rock excavating Body with downfolding gate.

Type W12 Body—Model F4C cam and roller Hoist. Capacity 6 cu. yds.

Type W12 Body, front recessed for Model TV83 Hoist. Capacity 18 cu. yds.

Telescopic boom Crane. Radius 8 to 20 feet.

Type C12 Body and Model D6 or D7 Hoist. Dumping angle 55°.

Bulldozer and rear mounted winch.

Type W12 Body and single telescopic Hoist. Double acting tail-gate Capacity 4 cu. yds.

West Coast Special W-12 Body. Model F8C cam and roller Hoist. Capacity 10 cu. yds.

Cable Dozecaster with angling blade.

TRADE MARK

GW TRADE MARK

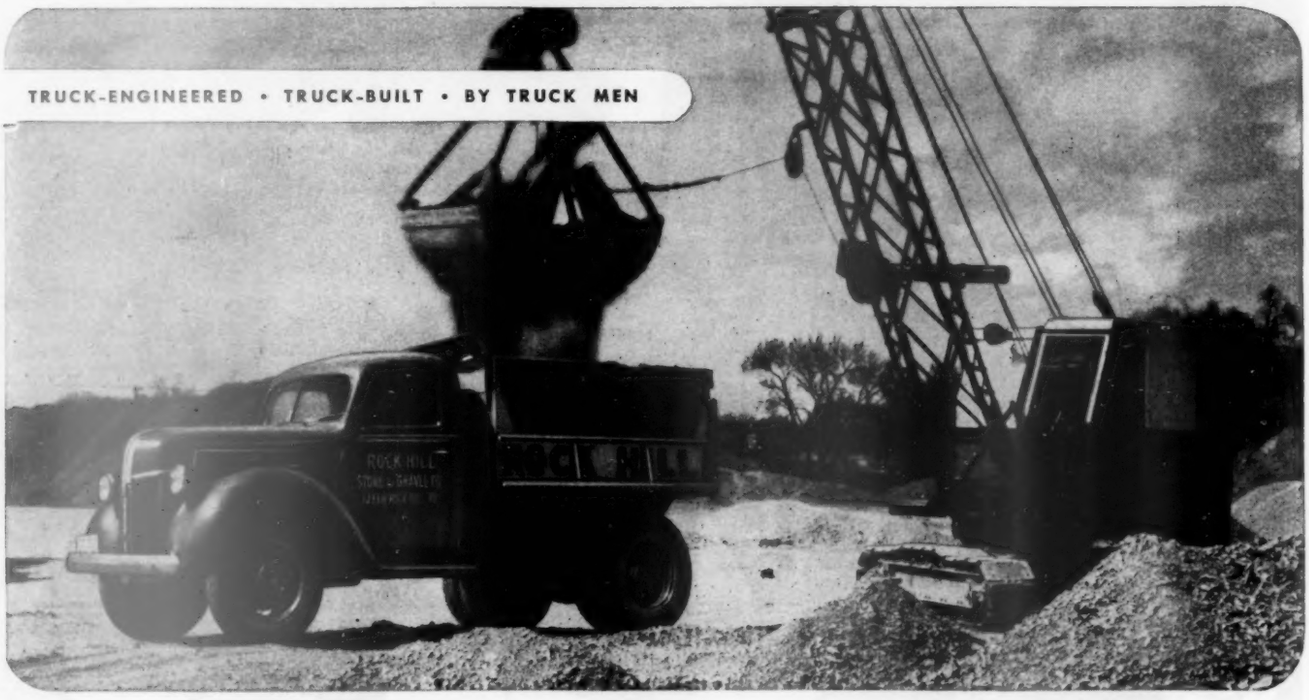
GAR WOOD INDUSTRIES, INC.

7924 RIOPELLE ST. • DETROIT 11, MICH.

WORLD'S LARGEST MANUFACTURERS OF TRUCK AND TRAILER EQUIPMENT

OTHER PRODUCTS: TANKS • HEATING EQUIPMENT • MOTOR BOATS

Better Trucks for YOUR Business!



"WE BELIEVE ONLY FORDS CAN DO THIS WORK AT THE SAME LOW COST"

The statement above is quoted from a letter received from Mr. C. A. Hurt, of Rock Hill Quarries Company, St. Louis, Mo. It sums up, we believe, the reasons why so many stone products producers and handlers look to sturdy Ford Trucks for thrifty transportation in their operations. Mr. Hurt describes his company's operation—

"Our twelve Ford Trucks haul crushed stone to street and road jobs. On new work, they often have to pull over new fills or back up on severe grades to put the stone where contractors want it."

"We have been using Ford Trucks since 1937, hauling an average of six tons per load. We believe they are the only trucks that can do this work for the same low cost per ton-mile. When we require Ford parts, the fact that Ford dealers are so near and parts so inexpensive makes this item negligible in our costs."

The new Ford Trucks now being built are the best in Ford history. Of especial interest is the new Ford Dump Truck Chassis, available with either the 100 HP V-8 or the 90 HP six-cylinder engine. Check its performance and capacity figures with your Ford Dealer. We believe you'll agree it's a real profit-earner.

Ford

ADVANCED ENGINEERING IN NEW FORD TRUCKS

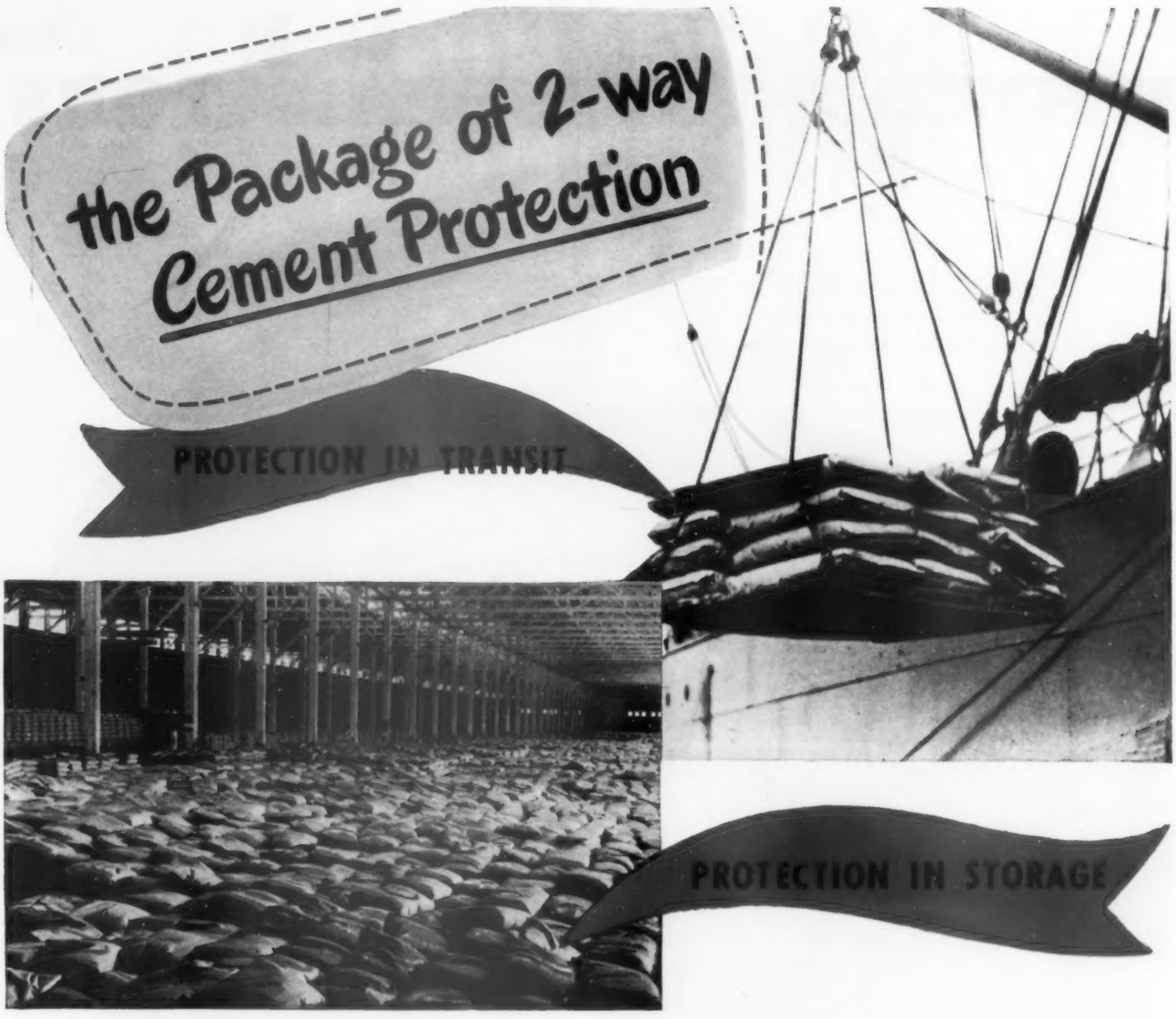
More Economy and Endurance
Easier Servicing

A STILL GREATER 100 HP V-8 ENGINE with NEW Ford steel-cored Silvaloy rod bearings, more enduring than ever in severe service • NEW aluminum alloy cam-ground 4-ring pistons for oil economy • BIGGER, more efficient oil pump and IMPROVED rear bearing oil seal • NEW longer-lived valve springs • NEW improvements in cooling • NEW efficiency in ignition • in carburetion • in lubrication • in ease and economy of servicing operations • And available in all truck chassis except C.O.E. units—the rugged, thrifty 90 HP FORD SIX-CYLINDER ENGINE, with many important advancements.

FORD CHASSIS ADVANTAGES: Easy accessibility for low-cost maintenance • Universal service facilities • Tough, forged front axles • Extra-sturdy rear axles with pinion straddle-mounted on 3 large roller bearings, ¾-floating type in light duty units, full-floating in all others • 3 axle ratios available (2 in 1-ton unit) • 2-speed axle available in heavy duty units at extra cost • Powerful hydraulic brakes, large drums, cast braking surfaces • Rugged 4-speed transmission with NEW internal reverse lock optional at extra cost on light duty units, standard on all others.

FORD TRUCKS

MORE FORD TRUCKS ON THE ROAD • ON MORE JOBS • FOR MORE GOOD REASONS



During millions of miles of travel—by truck, railroad, and steamship — St. Regis Multiwall Paper Bags have demonstrated their superior protective qualities.

These heavy-duty bags of specification-made kraft paper stand up under rough handling and loading conditions.

Multiwalls also protect cement from damaging dampness . . . reduce caking . . . in storage and in transit.

The St. Regis Paper Company is keenly aware of the important part which cement and other rock products are being called upon to play in this country's great building program. We are therefore redoubling our efforts to provide the bags needed to carry these important materials.

St. Regis MULTIWALL PAPER

MULTIPLY PROTECTION • MULTIPLY SALEABILITY

ST. REGIS SALES CORPORATION

(Sales Subsidiary of St. Regis Paper Company)

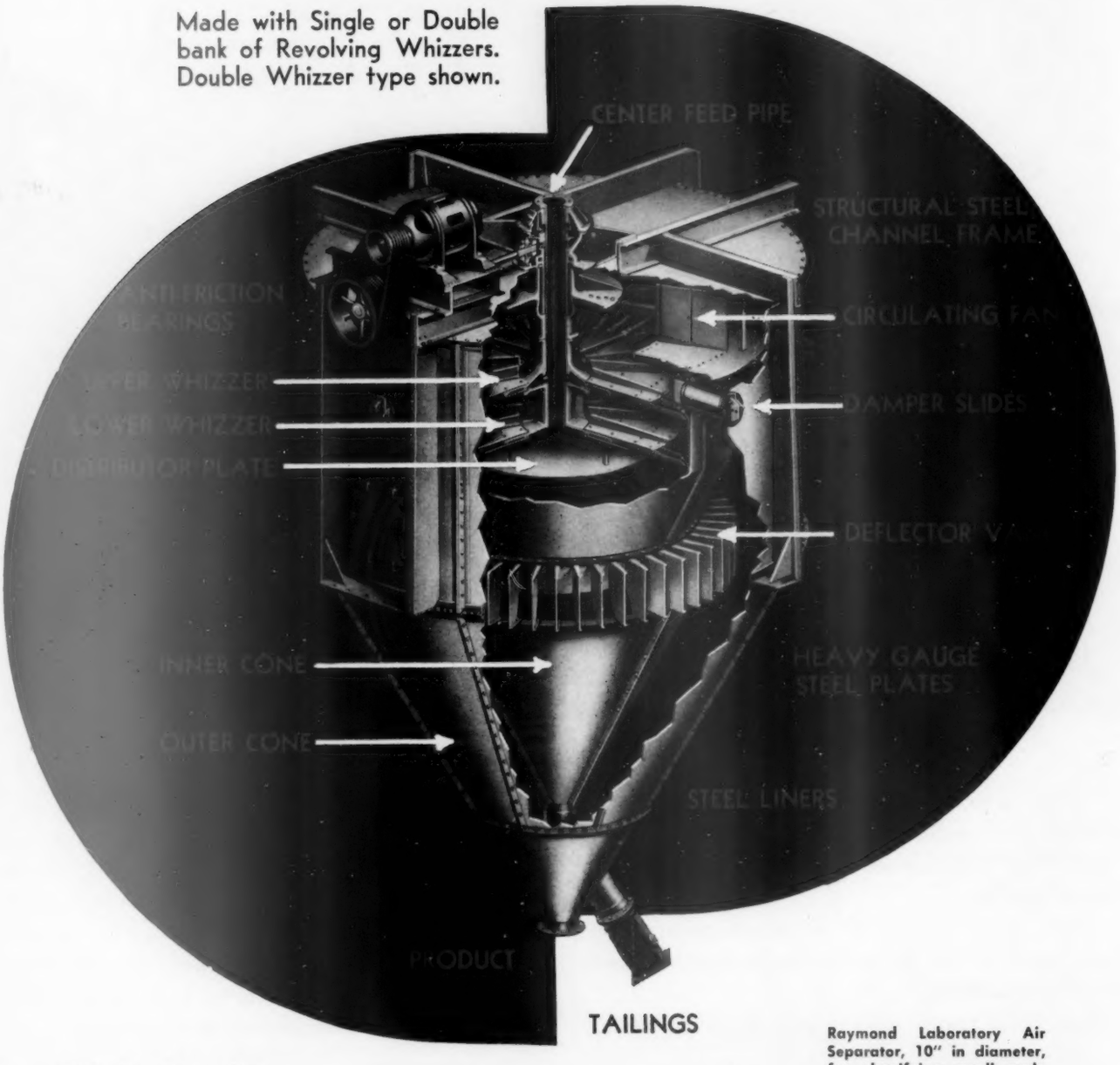
NEW YORK 17: 230 Park Ave. **CHICAGO 1: 230 No. Michigan Ave.**
BALTIMORE 2: 2601 O'Sullivan Bldg. **SAN FRANCISCO 4: 1 Montgomery St.**

IN CANADA
St. Regis Paper Co. (Can.) Ltd.
Montreal, Quebec
Vancouver, British Columbia

Birmingham Boston Cleveland Dallas Denver Detroit Franklin, Va.
Los Angeles Nazareth, Pa. New Orleans No. Kansas City, Mo. Seattle Toledo

RAYMOND WHIZZER AIR SEPARATORS

Made with Single or Double bank of Revolving Whizzers. Double Whizzer type shown.



Built in nine sizes from 30 inches to 18 feet in diameter.

Raymond Laboratory Air Separator, 10" in diameter, for classifying small scale test batches of 5 to 100 pound lots, is described in Bulletin No. 53.

Write for Raymond Whizzer Separator Bulletin No. 56

RAYMOND COMBUSTION

Sales Offices in Principal Cities

Canada: Combustion Engineering Corp., Ltd., Montreal

EFFICIENCY
CLOSED CIRCUIT GRINDING

THE whizzer principle of classification . . . an exclusive feature of Raymond Mechanical Air Separators . . . gives such superior results in closed circuit grinding operations that Raymond installations are typical of modern-equipped plants throughout the non-metallic minerals industry.

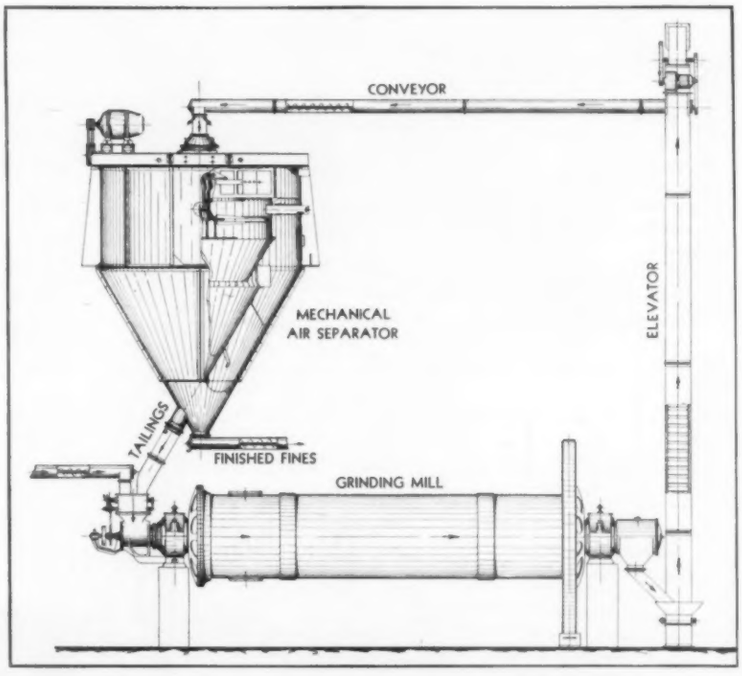
The effect of the whizzer action is to produce sufficient centrifugal force to throw the oversize material out of the air stream, concentrating it along the surface of the inner cone and speeding its discharge. The resultant advantages of this method are definitely shown by:—

Closer separation of the fines
Maximum recovery of finished material
Higher "flour content" in product
Wider range fineness control
Greater capacity and uniformity
Cleaner tailings

The use of a single or double whizzer separator for a given job is determined according to the nature of the material, character of feed, and the degree of classification. The fineness range is from medium coarse up to 99.9% plus, passing 400-mesh with a high percentage of superfine material averaging 5 to 10 microns in size.

For classifying cement, the double-whizzer in combination with slide damper control provides wide range fineness adjustment . . . from standard Portland to high early strength cement specification.

This flexibility in control is also important in separating hydrated lime, gypsum, slate dust, graphite, flint, silica, food products, chemicals, dry colors and many different manufactured products. For versatile application and economical operation, specify a Raymond whizzer-type Mechanical Air Separator.



Flow sheet showing closed circuit arrangement of Mechanical Air Separator with ball or tube mill.

PULVERIZER DIVISION
ENGINEERING COMPANY, INC.
1321 North Branch Street, Chicago 22, Illinois
SINCE 1887

There's a difference between *Compactness* and *Space Adaptability*...

The *MULTICLONE* has BOTH!

IN SELECTING dust recovery equipment, every foot of space saved is that much more valuable area available for other equipment. And the *compactness* of the equipment you select is just one of several ways to save plant space. Equally important is the *adaptability* of the equipment to space limitations within an existing plant.

And this is how the Multiclone makes two-way savings in space. For the Multiclone unit itself is not only more compact than other equipment of comparable performance (see chart), but it is highly adaptable to a wide range of space limitations—to low headroom, to restricted side clearances, and even to fitting into narrow or odd-shaped areas that would otherwise be waste space.

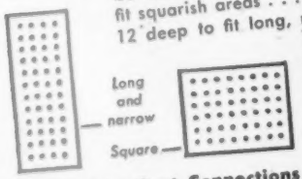
For this reason, you can fit the Multiclone into unbelievably small spaces—out-of-the-way areas behind or beneath other equipment. And saving valuable space is just one of many Multiclone advantages . . . The cleaning efficiency of its small tubes (made possible by the patented *vane* construction) is such that it recovers not only large, medium and small particles, but also a high percentage of the very small particles of 10 microns and less. • It has no high speed moving parts, no screens, nothing to require frequent servicing, repair or replacement. • Its single inlet and outlet ducts greatly simplify installation, insulation and maintenance . . . These and still other Multiclone advantages are outlined in this booklet. Send for your copy today!

HERE'S WHAT WE MEAN:

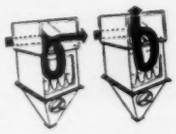
The Multiclone itself is unusually compact, requiring as little as 1/6 the floor space, 1/4 the cubic space of other units of comparable performance!

Make	Relative Space Requirements In Sq. Ft.	In Cu. Ft.
Multiclone	1.0	1.0
Collector A	2.1	1.8
Collector B	5.9	3.2
Collector C	6.8	3.9

. . . Also Its Shape is highly adaptable to various space requirements. For example, a 48 tube unit can be made 6 tubes wide by 8 tubes deep to fit squarish areas . . . or 4 tubes wide by 12 deep to fit long, narrow spaces. And inlets or outlets can be across either the wide or narrow faces —whichever is most convenient!



. . . And Its Duct Connections can also be varied to meet space limitations. For low headroom, a side-inlet side-outlet installation is generally best. But where side clearances are restricted, a side-inlet top-outlet installation can readily be made with the Multiclone. And even other arrangements are possible when necessary!



These are only typical of still other space-savings the Multiclone can make in your plant, whether your installation is in a new structure or for modernizing existing equipment. Let our experienced engineers give you all the facts and make helpful suggestions for simplifying your recovery problems. A letter, wire or call to our nearby office places this assistance at your service!

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1015 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. La SALLE ST., CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

Where Materials are Best Crushed by Impact

Sand
Agstone
Cement Rock
Metal Recovery
from Slag

FOR making the finer sizes which cannot be produced with conventional crushing equipment, the installation of a Symons Impact Crusher may be the solution to the problem. This machine is especially adapted for making sand from limestone, gravel, slag, coral rock, etc. It is ideal for reshaping and converting a material containing objectionable slivers, flats or slabs into a marketable product. Where specifications require properly shaped particles, the Symons Impact Crusher will best produce such materials.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN
NEW YORK · LOS ANGELES · WASHINGTON · LONDON · TORONTO · JOHANNESBURG

NORDBERG MACHINERY

SYMONS IMPACT CRUSHER

Here's why the
ATLAS ROCKMASTER
improves breakage, reduces vibration and backbreak

THE skillful boxer lands a left to the jaw, then follows it quickly with a blow from the right. Two short jabs in fast succession—but they accomplish what even the strongest *single* blow would fail to do.

This principle of the one-two punch is what Atlas applies to the Rockmaster Blasting System. First the rock is stressed to the breaking point—then, a split second later, it is hit again. Result: sensational improvement in fragmentation.

But that's not all that Rockmaster does. This new method of blasting has also drastically cut down noise and concussion . . . reduced secondary blasting to a minimum . . . practically eliminated backbreak. Rockmaster can almost certainly do better work for you, too . . . with your knowledge of the job plus the Atlas representative's special knowledge of explosives. Call him in.

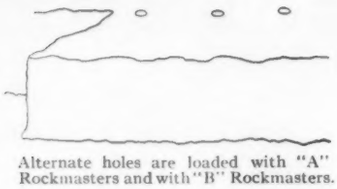


FIG. A

Alternate holes are loaded with "A" Rockmasters and with "B" Rockmasters.

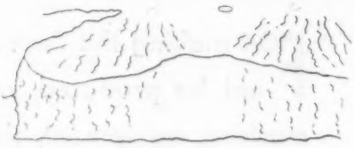


FIG. B

Detonation of "A" Rockmasters places rock under tremendous tension—*almost* to the breaking point.

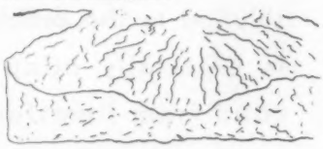


FIG. C

Split-seconds later, the "B" Rockmaster completes the job—*thoroughly* shatters the rock.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • ***Offices in principal cities*** • ***Cable Address—Atpowco***

In Gardening It's

A GREEN THUMB

You've heard of the chap with a "green thumb." Everything he plants flourishes. Of course, what he really has is an unusual combination of knowledge, experience, and great enthusiasm for what he's doing.

Call it "green thumb" . . . call it knowledge . . . call it "feeling" for the job . . . it's a quality that every Stephens-Adamson engineer brings to Material Handling problems.

It comes to him from long association with a group of progressive conveyor engineers . . . with a company that for 45 years has led the field with new units and new methods.

This "feeling" for the job is supplemented by a complete line of conveyors and accessories from which S-A engineers can make unrestricted choice—the right equipment . . . to convey the right volume . . . to the right place . . . at the lowest cost per ton over the long term.

If you want the man with the "green thumb" in the bulk material handling field, talk to an S-A engineer.

STEPHENS-ADAMSON MFG. CO.

20 RIDGEWAY AVENUE, AURORA, ILLINOIS — LOS ANGELES, CALIF. • BELLEVILLE, ONT.

Designers and Manufacturers of All Types of

BULK MATERIAL HANDLING EQUIPMENT

Sturtevant Centrifugal Air Separator in closed circuit with Ring-Roll mill.

RECORDS PROVE

Sturtevant Air Separators

Increase production of accurately sized materials . . . reduce separating costs of sizings from 40 to 350 mesh

When requirements call for a continuously uniform product of any desired fineness from 40 to 350 mesh, use Sturtevant Air Separators. These highly efficient separators will increase output of accurately sized materials by as much as 300%. In addition, they reduce power costs up to 50%.

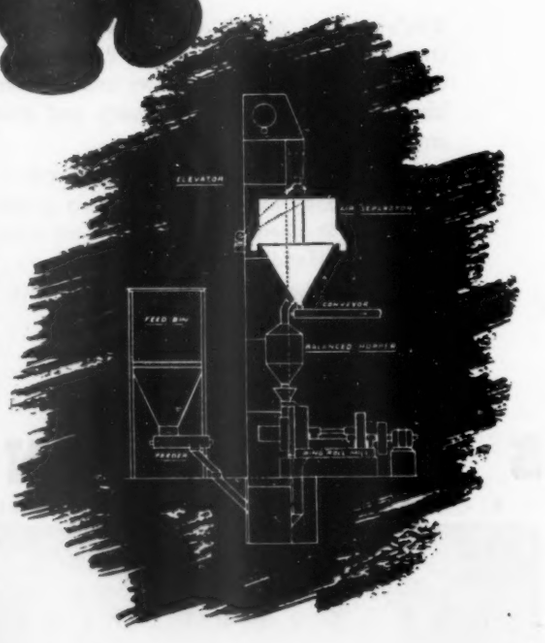
Hundreds of installations in practically every type of industry prove that Sturtevant Centrifugal Air Separators are more economical to use because their efficient operation assures finer separation of fine materials with the result that uniform quality is always obtained.

They are available in sizes from 3 to 16 feet in diameter with capacities from ¼ to 50 tons per hour. Get the entire story. Write for Bulletin 087 today.

STURTEVANT
MILL COMPANY
55 Harrison Square, Boston 22, Mass.

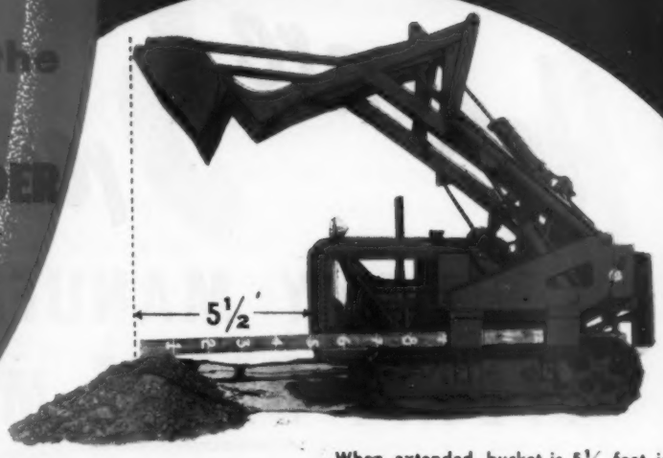
Designers and Builders of

CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS • ELEVATORS • LABORATORY EQUIPMENT • MECHANICAL DENS AND EXCAVATORS • MIXERS



First Showing of the DROTT HI-LIFT LOADER

... built for Oliver-Cletrac Tractors



When extended, bucket is 5½ feet in front of radiator—ample reach for loading trucks. When resting on its shoes, bucket is 1½ feet in front of radiator—easy on tractor when skidding loads.

There's plenty of clearance for dumping into trucks—up to 10½ feet from ground to hinge pin of bucket.

A TRACTOR LOADER THAT DIGS LIKE A SHOVEL

Hydraulically operated, the Drott Hi-Lift Loader "bears down" and in as it loads, then tilts upward in shovel fashion, heaping the bucket every time. Increases yardage everywhere . . . on straight excavation or handling of loose material. Easily loads into trucks up to 8½ feet high. Operator has clear vision at all times, digging and loading. When desired, unit may be used for bulldozing. It will pay you to get all the facts. See your Oliver-Cletrac dealer.

★ ★ ★

Operated by DROTT POSITIVE, CLOSED HYDRAULIC SYSTEM. SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out... keeps oil in! Used successfully on Drott equipment for many years.

Quickly excavates and loads dirt or any loose material—shown loading coal (left) and crushed rock (above). On time tests over a long period, it loaded a 3-yd. truck a minute on pit run gravel in Young County, Texas.

DROTT EQUIPMENT

DROTT MANUFACTURING CORP.

(FORMERLY HI-WAY SERVICE CORPORATION)

5141 N. 35th STREET, MILWAUKEE 9, WISCONSIN

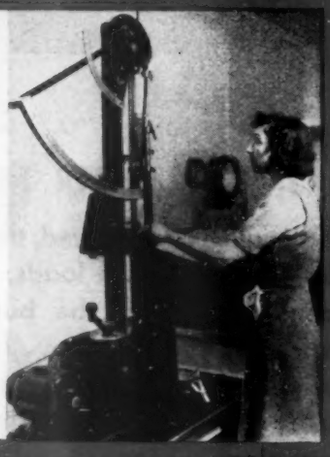
Here are 5 reasons why

. . . MANY MANUFACTURERS SPECIFY **BEMIS** MULTIWALL PAPER SHIPPING SACKS

1

CONTROLLED QUALITY

Materials for Bemis Multiwall Paper Shipping Sacks are carefully selected and laboratory tested before they are O.K.'d for use on our production lines. Typical is the tensile strength test, illustrated at right.



2

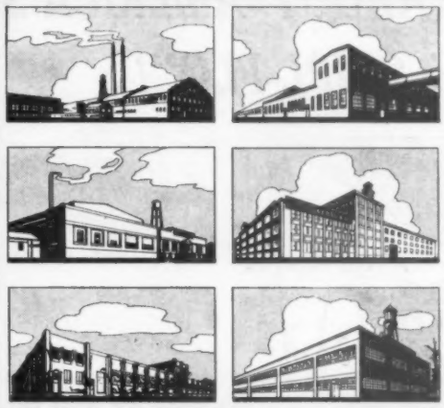
BETTER BRAND PRINTING

Our Six Multiwall plants are equipped with modern printing equipment. Skilled engravers make the plates that reproduce your brand, and our own laboratories develop and test the brilliant colorful inks that are used.

REAL PACKAGING SERVICE

Bemis Multiwall Specialists are always at your service—ready to help you solve tough packaging problems, study your present methods of filling, closing and handling and recommend changes that may lower costs and speed up production.

3



SIX BEMIS MULTIWALL PLANTS

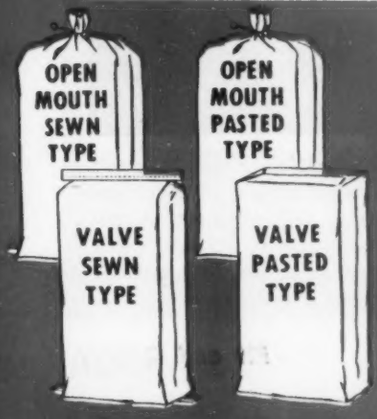
are strategically located North, South, East, and West to provide easy accessibility, quick delivery to your main plant or branches regardless of location. Bemis offices in 26 additional cities assure you of top-notch service.

4

A NATIONWIDE ORGANIZATION

There is a Bemis representative near you because Bemis offices are located in 32 principal cities. When you need Multiwalls, call Bemis. You'll find it pays to be a Bemis Multiwall customer.

5



BEMIS BRO. BAG CO.

Baltimore • Boston • Brooklyn • Buffalo
Charlotte • Chicago • Denver • Detroit
Houston • Indianapolis • Kansas City
Los Angeles • Louisville • Memphis

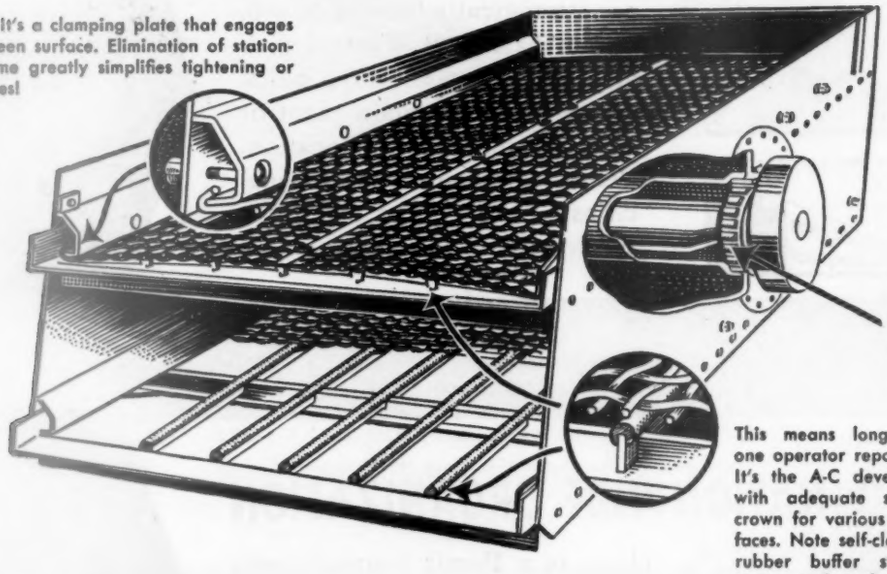
Minneapolis • New Orleans • New York City • Norfolk • Oklahoma City
Omaha • Orlando • St. Louis • Salina
Salt Lake City • Seattle • Wichita

PEORIA, ILL. • E. PEPPERELL, MASS. • MOBILE, ALA. • WILMINGTON, CAL.
SAN FRANCISCO, CAL. • ST. HELENS, ORE.

"Low Cost-- High Capacity!"

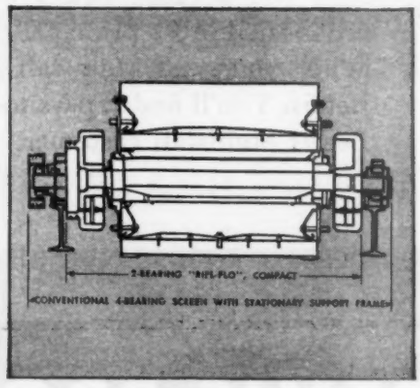
THAT'S THE STORY IN A NUTSHELL ABOUT AMERICA'S NO. 1 VIBRATING SCREEN--THE "RIPL-FLO"!

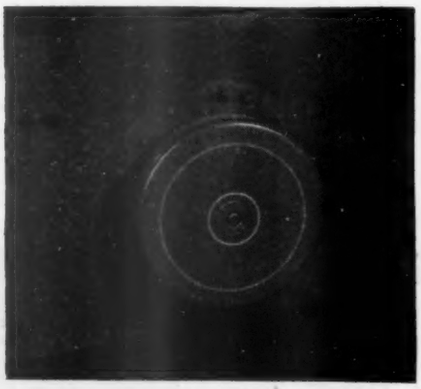
This saves time! It's a clamping plate that engages and tensions screen surface. Elimination of stationary support frame greatly simplifies tightening or changing surfaces!



This means low initial cost, low power consumption, low maintenance! Only 2 bearings are required to impart perfect circle motion to screen surface and body!

This means longer wire cloth life—one operator reports up to double life! It's the A-C developed support frame with adequate strength and proper crown for various grades of screen surfaces. Note self-clamping, wear-resisting rubber buffer strips that "cushion" screen surface from frame.

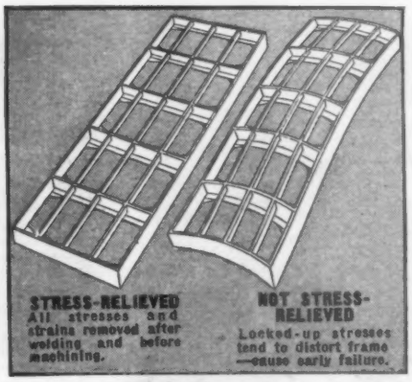




1 Fact is, 2-bearing "Ripl-Flo" *costs less* than any comparable 4-bearing screen—yet does as good *or better* screening job! One reason we can build it for less, pass savings to *you* is that . . .

2 Extra outer bearings, stationary support frame, *all* superfluous parts are eliminated — reducing width 17%, weight 36%! This, coupled with *perfect balance,* cuts amount of power required.

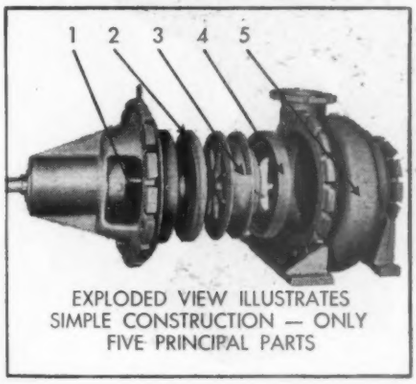
3 Yes, Ripl-Flo's perfectly balanced mechanism means *smooth* performance, *uniform travel* of material over entire surface, *rapid stratification* of bed, *full capacity!* Want *low* maintenance?

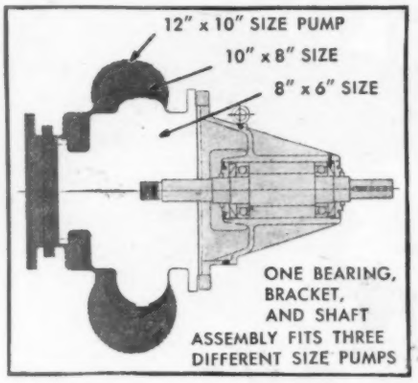

STRESS-RELIEVED
All stresses and strains removed after welding and before machining.
NOT STRESS-RELIEVED
Locked-up stresses tend to distort frame —cause early failure.

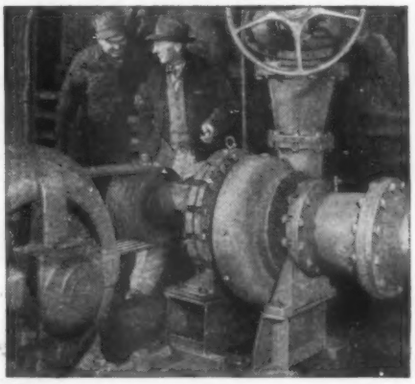
4 Screen body is high tensile strength alloy steel (up to *50% stronger* than regular steel). All welded parts are "stress-relieved" to *eliminate* structural failures—give *extra years* of screen life!

5 Before it can go out to do a job for you, every "Ripl-Flo" screen must pass a tough, 2 hour "exam." Running in a special test rig, it's checked for throw, balance, bearing temperature, etc.

6 The customer gets his *choice* at A-C—can select from 8 *different* types of screens! Want more details on *modern, up-to-date* Ripl-Flo—1 to 4 decks? Send for Bulletin B6151B.







7 Another A-C help is the new "Solids-Handling" pump—that promises *2 to 4 times longer life*—cuts parts inventory *much as 2/3—materially* reduces down-time! It's so designed that . . .

8 You can remove entire rotating element *without* disturbing piping—take apart, re-assemble entire pump fast as *½ hour!* And, it is comparable in price to ordinary high efficiency pumps.

9 Here's what one operator reports: "Downtime cut 400%; power savings $7 day; parts inventory cut 70%!" Want a *new low cost* per ton of solids pumped? Get Bulletin B6381.

GET THIS "TEAM-UP" FROM ONE SOURCE!

Equip your plant with *basic* machinery *plus* economical power equipment to *run* it—get it all from *1* company! Yes, A-C not only builds screens, crushers, grinding mills, kilns, etc.—but also power generation, distribution and control equipment—motors, pumps, blowers, compressors, Texrope V-Belt drives—*over 1600 different products for you!*

A-1968

ALLIS-CHALMERS

PRODUCER OF WORLD'S LARGEST LINE OF CRUSHING, CEMENT & MINING EQUIPMENT!

A-C

MILWAUKEE, WISCONSIN

It's Tough on the Fish and Father . . .
AND JUST AS TOUGH ON YOU!

Father, coming home at 3:00 A.M., has knocked over the goldfish bowl. That's improper fragmentation—tough on the fish, and on father, too!

And it's tough on you when it happens in your quarry.

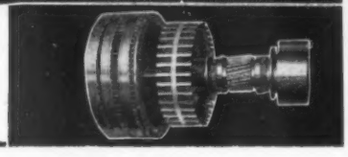
But — improper fragmentation *is* avoidable! Just use Detonite—the patented, surface-sensitized explosive that only King Powder can make. Detonite works with a heaving, shoving, pushing action that brings down properly sized stone. The result? Faster runs—more continuous operation — fewer repairs and longer life for your shovels.

Let us demonstrate in *your* quarry—under *your* operating conditions—what Detonite can do for *you.* For the test that will prove Detonite's superiority, see your nearest King representative, or write us direct.

KING EXPLOSIVES

THE KING POWDER CO. INC.
CINCINNATI 1, OHIO . . . . . INCORPORATED 1878

Digging With a Magnetorque Bite...



No matter how tough the digging or what the material, the bite of P&H's Magnetorque hoist is driving tonnage costs lower than ever before thought possible.

This unit — used for hoisting only — replaces about two thirds of the usual motor generator set. It actually eliminates the hoist generator, its commutation problems, reduces peak power demands to a minimum. It also eliminates the hoist slip clutch, its headaches and high maintenance costs.

Power for hoisting—under operator's control—is transmitted by electromagnetic forces. A simple AC squirrel cage motor drives the hoist machinery through the Magnetorque unit without sacrifice of speed, control or responsiveness. Lowering is by gravity so the hoist motor never reverses.

Born of P&H's 60-year leadership in applying electrical power to the movement of heavy loads, the Magnetorque unit is another forward step toward more dependable digging at lower cost in all kinds of open pit operations. Write for complete information.

P&H

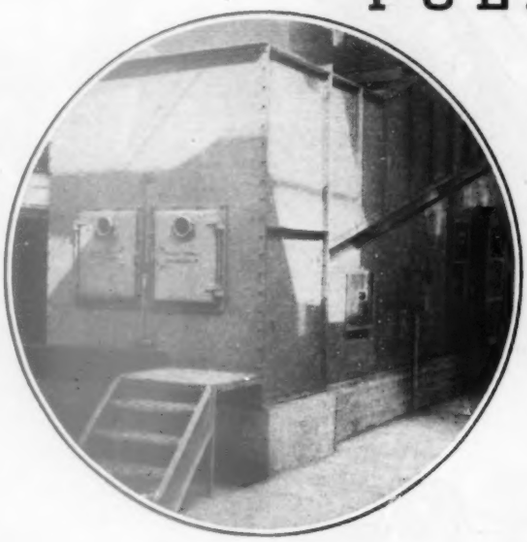
ELECTRIC SHOVELS
4451 W. National Avenue
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION
EXCAVATORS · ELECTRIC CRANES · ARC WELDERS · P&H · HOISTS · WELDING ELECTRODES · MOTORS

LEADERS IN ELECTRICAL SHOVEL DEVELOPMENT

BUILT TO BETTER YOUR COOLING

FULLER AIR-QUENCHING INCLINED-GRATE COOLER



The Fuller Air-Quenching Inclined-Grate Cooler was conceived, designed and built by engineers having years of experience in the cement industry. They knew the problems of the industry and what was needed. With this experience and knowledge they set out to build, not just another cooler, but one that would actually meet desired requirements in a highly satisfactory manner.

This determination has had its just reward, for over 125 coolers have now been sold, a great majority of which have already been put into operation.

This cooler has many outstanding qualities not to be found in any other cooler now being offered the industry. Bulletin CO-3 fully illustrates and describes various applications of the cooler, together with important advantages to be gained through the use of this equipment. Write for your copy now . . . it will be sent you promptly.

FULLER DRY PULVERIZED-MATERIAL COOLER

The Fuller Dry Pulverized-Material Cooler was developed and built primarily for the purpose of cooling finished Portland cement and to meet specifications of state highway departments and other users. Also for the elimination of difficulties encountered in storing and packing hot materials.

Installations have now been in successful operation over an extended period in the cement and chemical-process industries.

The cooler is simple in design, efficient, low in power consumption and maintenance. Each cooler unit is entirely independent of the other. One or more units may be shut down for inspection or repairs without affecting the operation of the other units. Internal mechanism is readily accessible.

Bulletin PMC-1 fully illustrates and describes this equipment. We'll be glad to send you a copy on request.

FULLER COMPANY

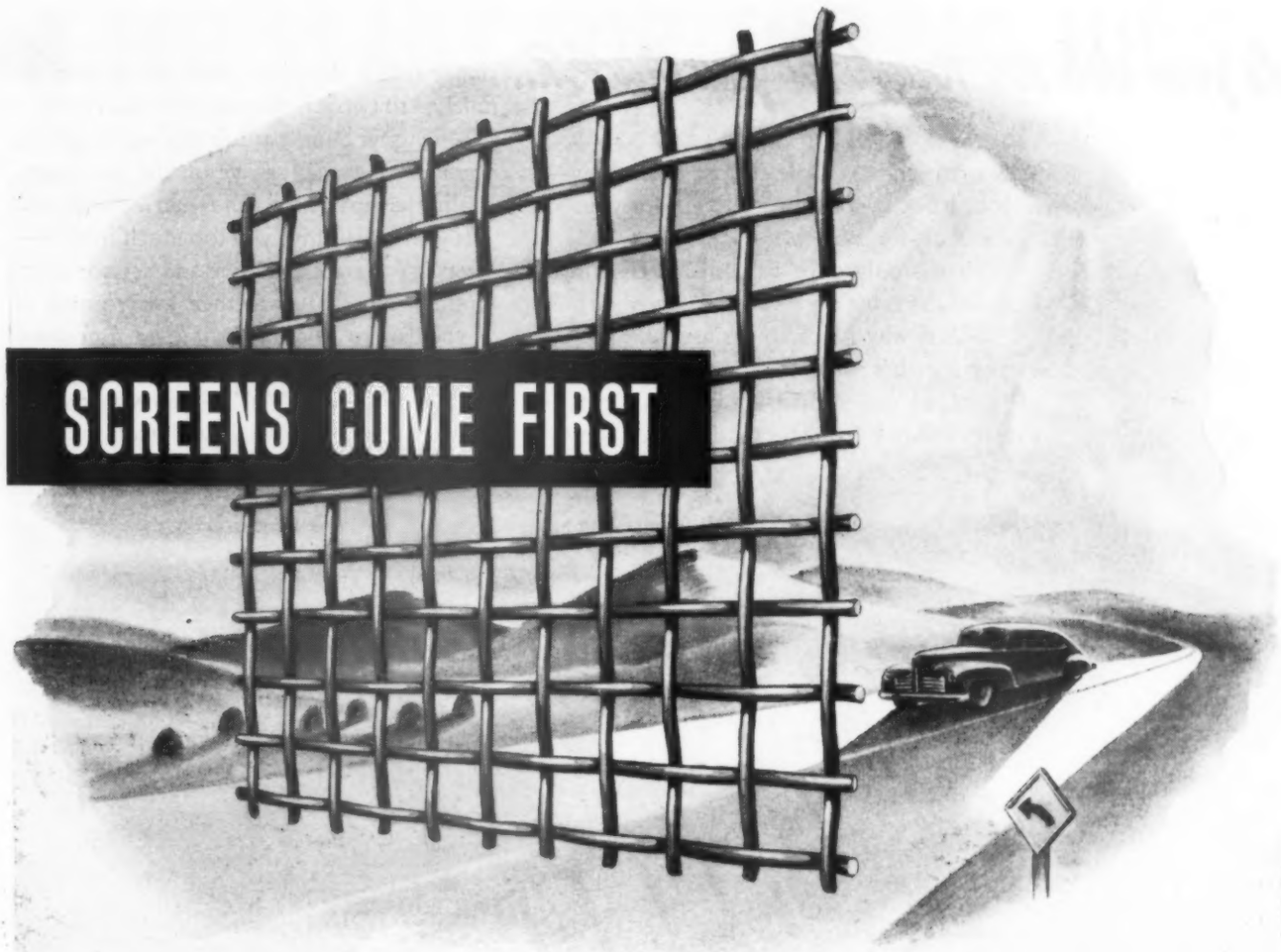
CATASAUQUA, PENNSYLVANIA

Chicago 3 · 120 So. LaSalle St.
San Francisco 4 · 421 Chancery Bldg.
Washington 5, D. C. · 618 Colorado Bldg.

FULLER COMPANY

FULLER-KINYON, FULLER-FLUXO AND THE AIRVEYOR CONVEYING SYSTEMS . . . ROTARY FEEDERS AND DISCHARGE GATES . . . ROTARY AIR COMPRESSORS AND VACUUM PUMPS . . . AIR-QUENCHING INCLINED-GRATE COOLERS . . . DRY PULVERIZED-MATERIAL COOLER . . . AERATION UNITS . . . MATERIAL-LEVEL INDICATORS . . . MOTION SAFETY SWITCH . . . SLURRY VALVES . . . SAMPLERS

G-42



That's right . . . every yard of material for the new highways scheduled for construction must be accurately sized to rigid specifications.

And for most efficient sizing, operators agree that vibrating screens which are "Job-Engineered" by Robins insure that your products will meet these specifications.

On Robins screens, or any screen equipment for that matter, Robins Improved Super-Gyraloy Screen Cloth will further help you meet the most stringent specifications. This is true because a special oil-tempered wire is woven to extremely accurate standards. You can be sure that accuracy of openings will be maintained because the tough, oil-tempered wire resists abrasion . . . provides longer life.

So, before you pass the talking stage, make it a point to get the right answer to your screening problem. A qualified Robins "Job-Engineer" is available without cost or obligation. Simply write or telephone to bring him to your desk.

AMERICA'S ONLY *COMPLETE* MATERIALS HANDLING SERVICE

Hewitt and Robins unite to offer you 136 years of combined experience in "Job-Engineered" rubber products and machinery designed to answer any materials handling problem you may have.

ROBINS

CONVEYORS INCORPORATED

PASSAIC, NEW JERSEY

DIVISION OF HEWITT RUBBER CORPORATION

Is your Job too tough for your truck?...

No matter how little it cost when new—if your truck is not tough enough for your job *it will cost too much in the end.*

There's only one "bargain" in trucking—and that's *extra work for your money.*

This is why Mack trucks are built the way they are. It's why, for instance, Mack uses Tetrapoid rather than conventional gears—rubber Shock Insulators rather than conventional spring shackles—wrist pins precision-finished to two ten-thousandths of an inch.

When you build a truck this way *it gives its owner extra work.* It stays on the job *longer.* It is in the repair shop *less. It costs less in the end.*

If your trucks give you too much trouble—if repair costs are excessive and service interruptions too frequent—then ask yourself if maybe you're not just using *too little truck for the job!*

If the answer's "*Yes!*"—then you need a Mack. It pays off in work on the job.

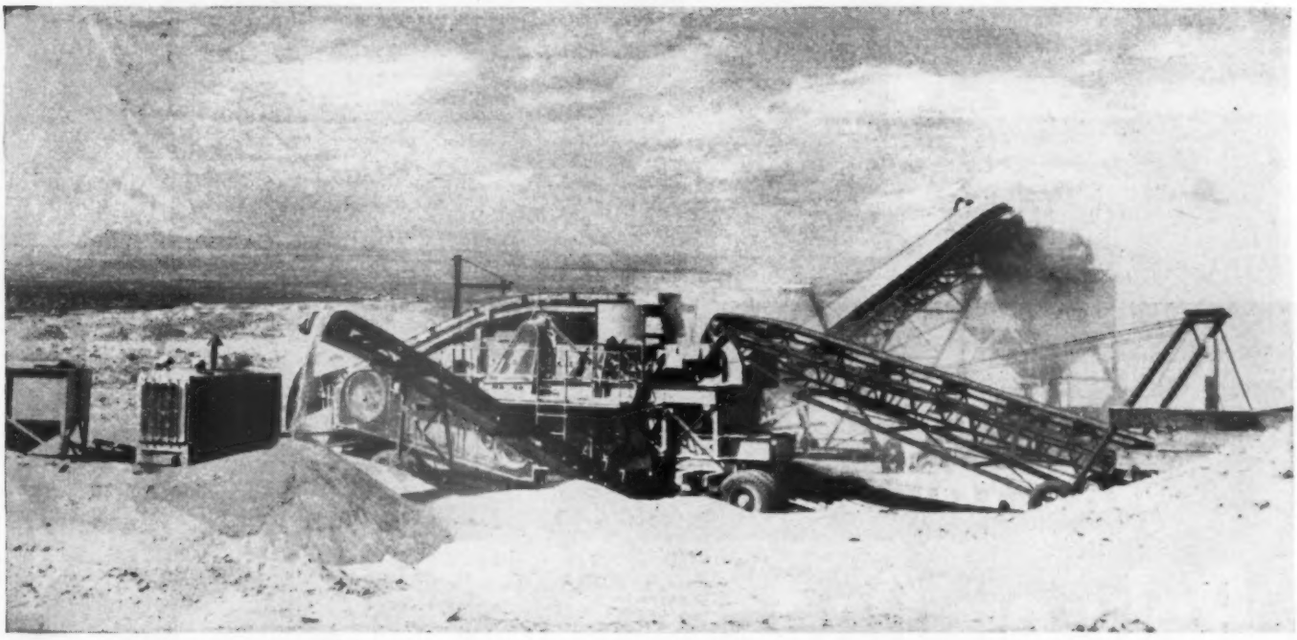
Mack Trucks, Inc., Empire State Building, New York 1, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts.

Mack
TRUCKS
FOR EVERY PURPOSE

Performance Counts!

A BIG PLANT FOR THE BIG JOBS

...where low cost is all-important



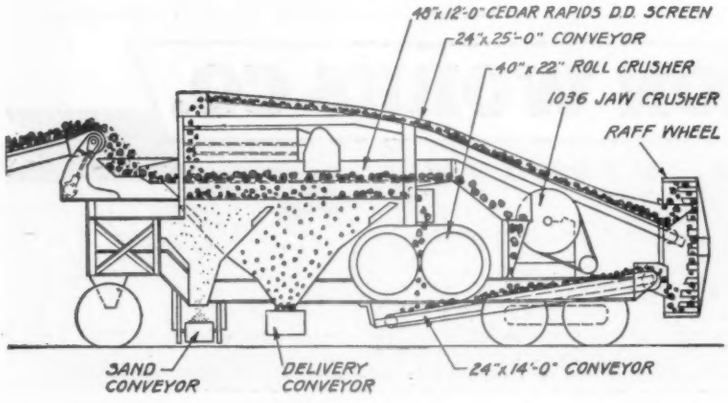
The Cedarapids Master Tandem

"Life Seal" conveyor bearings require no field lubrication. Quickly convertible to quarry plant by adding portable primary. No lost time for setting up and taking down between jobs. Ask for bulletin MT-1.

HERE'S a portable gravel plant that really lives up to its name—MASTER — master of low-cost operation for your big aggregate producing jobs. It contains all the features that mean big capacity, trouble-free operation and low cost. Horizontal vibrating screen assures greater capacity and closer grading. Large roller bearing jaw and roll crushers have plenty of capacity for smooth operation for every pit condition. V-belt and universal drives eliminate troublesome chains and sprockets. There are dozens of other exclusive features that make the Master Tandem today's most modern, all-purpose crushing plant. Get the facts from your nearest Cedarapids distributor.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.



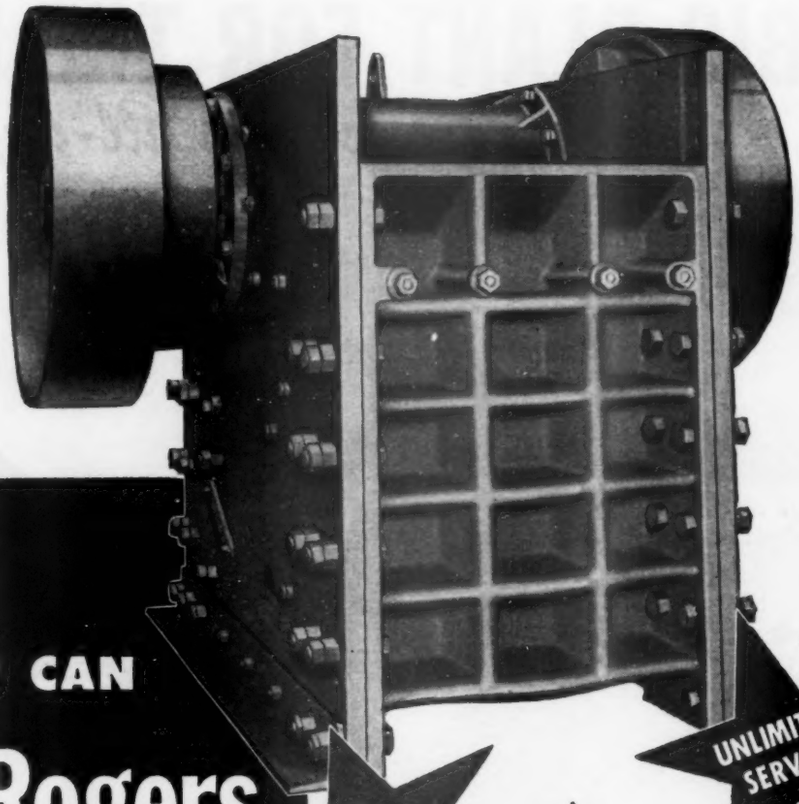
Cedarapids

Built by IOWA

THE IOWA LINE

of Material Handling Equipment Includes

ROCK AND GRAVEL CRUSHERS
BELT CONVEYORS—STEEL BINS
BUCKET ELEVATORS
VIBRATOR AND REVOLVING SCREENS
STRAIGHT LINE ROCK AND GRAVEL PLANTS
FEEDERS—TRAPS
PORTABLE POWER CONVEYORS
PORTABLE STONE PLANTS
PORTABLE GRAVEL PLANTS
REDUCTION CRUSHERS
BATCH TYPE ASPHALT PLANTS
TRAVELING (ROAD MIX) PLANTS
DRAG SCRAPER TANKS
WASHING PLANTS
TRACTOR-CRUSHER PLANTS
STEEL TRUCKS AND TRAILERS
KUBIT IMPACT BREAKERS



WHY YOU CAN

Rely on Rogers JAW CRUSHERS

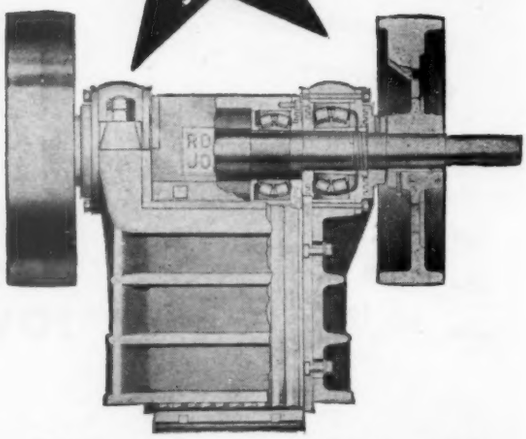
MORE CAPACITY

GREATER STRENGTH

UNLIMITED SERVICE

Oversize bearing and shaft diameters—from two to three sizes larger than normally used—are a big reason why *there has never been a bearing or shaft failure in a Rogers Jaw Crusher* and why Rogers Crushers have a greater rock reduction capacity. The Rogers line of Jaw Crushers is complete, in 16 sizes from a small reduction to a large primary crusher with large jaw opening.

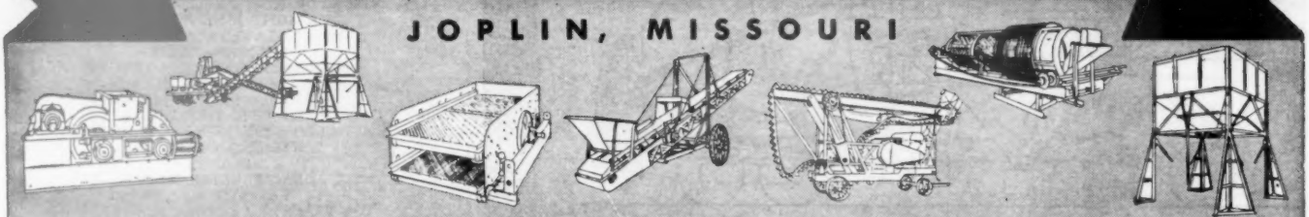
Rogers Rock Reduction machinery for crushing, sizing, conveying and storing has a reputation for reliability, strength and precision performance that has made Rogers a name for economical and efficient operation all over the world. For a single unit or a complete plant, you can always "Rely on Rogers".



The heart of the Rogers Jaw Crusher—oversize shaft and anti-friction bearings. (Also available with bronze bearings.) Write for complete descriptive bulletin today.

ROGERS IRON WORKS CO.

JOPLIN, MISSOURI



Quarry Plants • Gravel Plants • Jaw Crushers • Roll Crushers • Belt Conveyors • Bucket Elevators • Screens • Feeders • Steel Bins

TOUGH LOADS . . . RIGHT ANGLE FEED . . .

LICKED BY BWH CONVEYOR BELT!

Far below ground, a BWH Conveyor Belt, under extremely difficult conditions, licked the problems posed by this Pennsylvania Coal mining operation. Used as a "gathering conveyor," it picked up the discharge from other room conveyors and brought the coal to the cars. This operation involved tandem drive, right angle feed, and uneven distribution of load. Yet this belt . . . produced by the exclusive BWH ROTOCURE process of continuous vulcanization . . . did the job, and did it well!

This "know how" in producing conveyor belts of extraordinary toughness is one reason why BWH is known throughout industry for its achievements in producing industrial rubber goods of dependable ruggedness. Perhaps you've a problem we can solve for you.

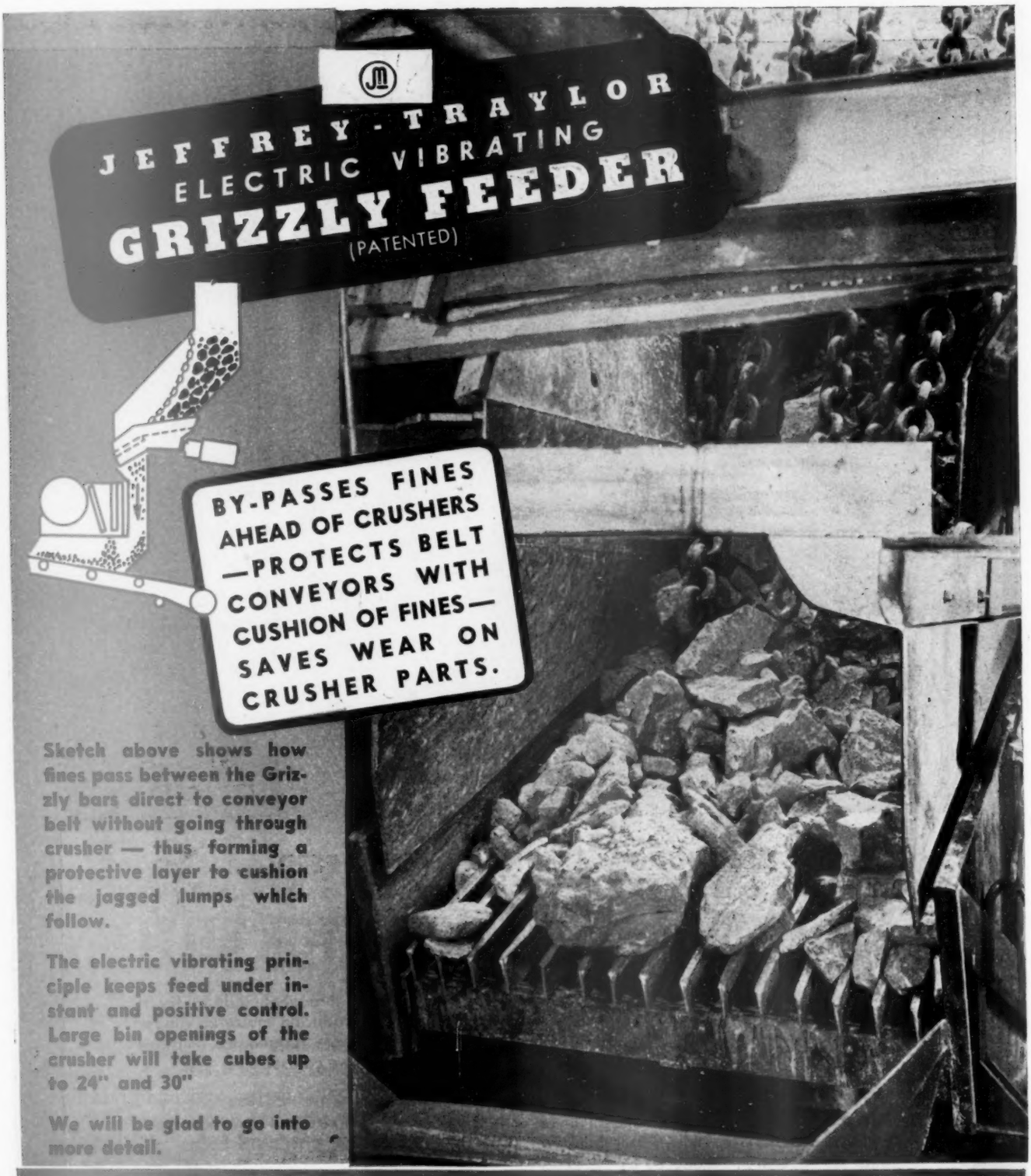
HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems . . . we're specialists in solving them. Consult your nearest BWH distributor, or write to BWH direct.

BOSTON WOVEN HOSE & RUBBER COMPANY

Distributors in All Principal Cities

WORKS: CAMBRIDGE, MASS., U. S. A. • P. O. BOX 1071, BOSTON 3, MASS.


JEFFREY-TRAYLOR
ELECTRIC VIBRATING
GRIZZLY FEEDER
(PATENTED)
BY-PASSES FINES AHEAD OF CRUSHERS —PROTECTS BELT CONVEYORS WITH CUSHION OF FINES— SAVES WEAR ON CRUSHER PARTS.

Sketch above shows how fines pass between the Grizzly bars direct to conveyor belt without going through crusher — thus forming a protective layer to cushion the jagged lumps which follow.

The electric vibrating principle keeps feed under instant and positive control. Large bin openings of the crusher will take cubes up to 24" and 30"

We will be glad to go into more detail.

THE JEFFREY MANUFACTURING COMPANY

917-99 North Fourth St., Columbus 16, Ohio

ESTABLISHED 1877

Baltimore 1 Buffalo 2 Cleveland 13 Harlan Milwaukee 11 Pittsburgh 22
Birmingham 3 Chicago 1 Denver 2 Houston 5 New York 7 St. Louis 3
Boston 16 Cincinnati 2 Detroit 13 Huntington 19 Philadelphia 3 Scranton 3 Salt Lake City 1

Low-Cost POWER for High-Level PRODUCTION

In addition to the International TD-9 Diesel TracTracTor shown here, International Harvester manufactures a full line of Diesel and carburetor models and a complete line of Industrial Power Units for stationary power installations.

THE COMPACT, powerful International TD-9 Diesel TracTracTor does a large part of the job of helping to produce 900 tons of rock daily from the quarry shown above. Here is an example of high-level production with low-cost power—International Power. The rugged TD-9 is used to strip off several feet of overburden and then to pile the rock into convenient loading piles after blasting operations. It handles both jobs with maximum efficiency and economy.

That's why Internationals are becoming more and more popular for pit and quarry operations. They're designed for the *tough* jobs—and they do them with the strictest economy. Internationals are better balanced for true traction under all conditions and that means more "push" and "pull" when you need it. Because they're engineered for the hardest kind of work, you have greater freedom from time-killing breakdowns and costly repairs. Besides, Internationals give you easy-starting, full-Diesel power—ready to go at a moment's notice.

Visit your nearest International Industrial Power distributor and let him show you why International Crawlers, with matched equipment, are the ideal answers to your power problems. He has the facts you want and need. See him now.

Industrial Power Division

INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue Chicago 1, Illinois

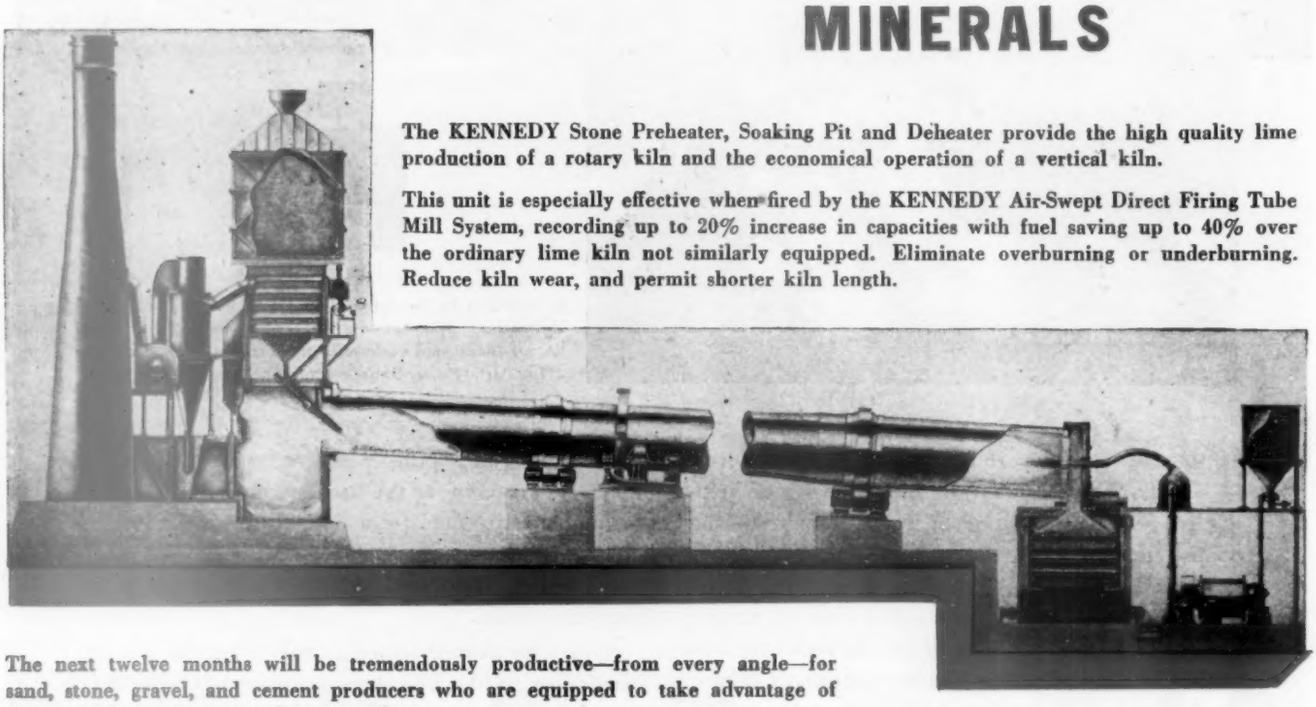
LISTEN TO "HARVEST OF STARS" EVERY SUNDAY! N B C NETWORK

INTERNATIONAL Industrial Power

. . . for a Year of Record Achievement

USE KVS

PROCESSING EQUIPMENT *for* PRODUCING NON-METALLIC MINERALS



The KENNEDY Stone Preheater, Soaking Pit and Deheater provide the high quality lime production of a rotary kiln and the economical operation of a vertical kiln.

This unit is especially effective when fired by the KENNEDY Air-Swept Direct Firing Tube Mill System, recording up to 20% increase in capacities with fuel saving up to 40% over the ordinary lime kiln not similarly equipped. Eliminate overburning or underburning. Reduce kiln wear, and permit shorter kiln length.

The next twelve months will be tremendously productive—from every angle—for sand, stone, gravel, and cement producers who are equipped to take advantage of the upward surge in general construction.

Many highly successful installations, already with imposing war-time production records because of super-performing KVS machines, are ready to meet any demands by a fast-growing market.

KVS units combine durability, high output, and operating economy to assure "a banner year *every* year" for plants specializing in the use of this modern equipment.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

in Operating Efficiency and Profit

KENNEDY
Ball-Bearing
GEARLESS CRUSHER

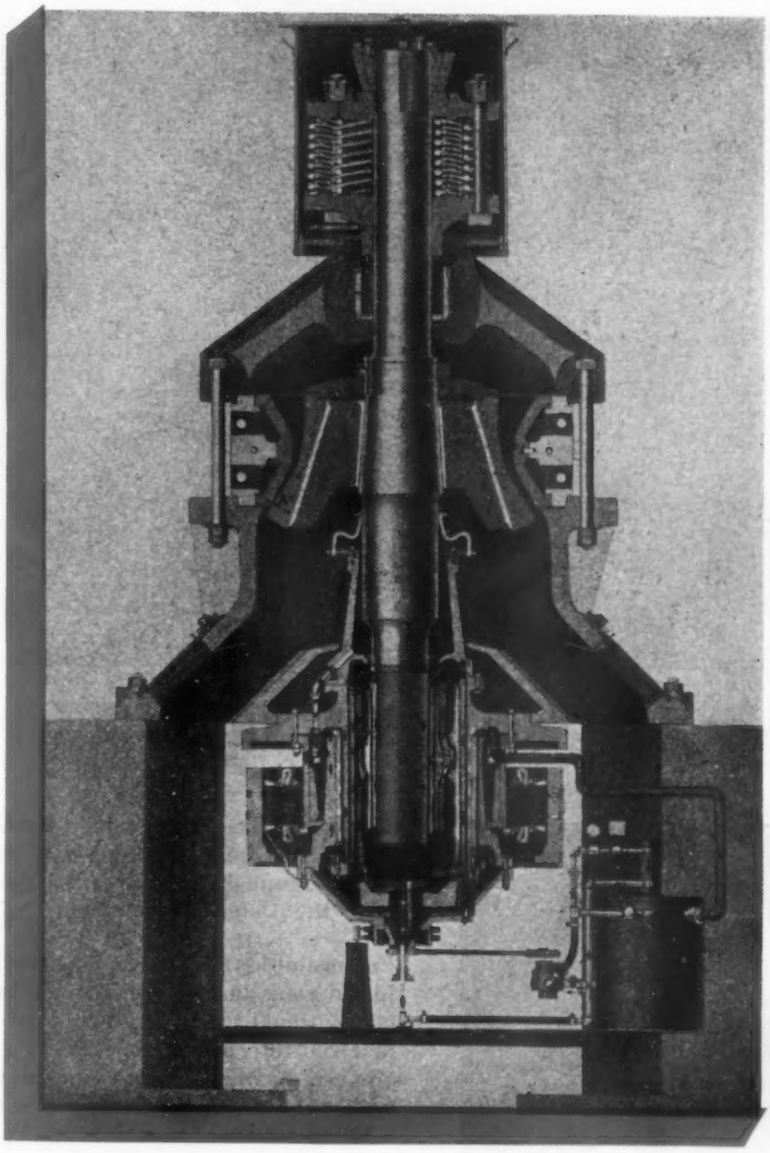
. . . low head type for fine crushing.

This KVS unit does *more* work than any geared crusher, and costs *less* for operation, maintenance and repairs.

This machine has produced 145 tons per hour when set to 7/16" between the head and concaves at the bottom.

Reversible concaves or grinding ring for extra wear. Forced feed lubrication. Quick adjustment of crusher opening. Easy accessibility.

KENNEDY Ball-Bearing Gearless Gyratory Crushers are also available in standard and short-shaft types. Wide range of capacities.



KVS MACHINERY includes: a complete line of equipment for burning, crushing, pulverizing, sand washing, screening, drying, power plant equipment, boilers, etc.

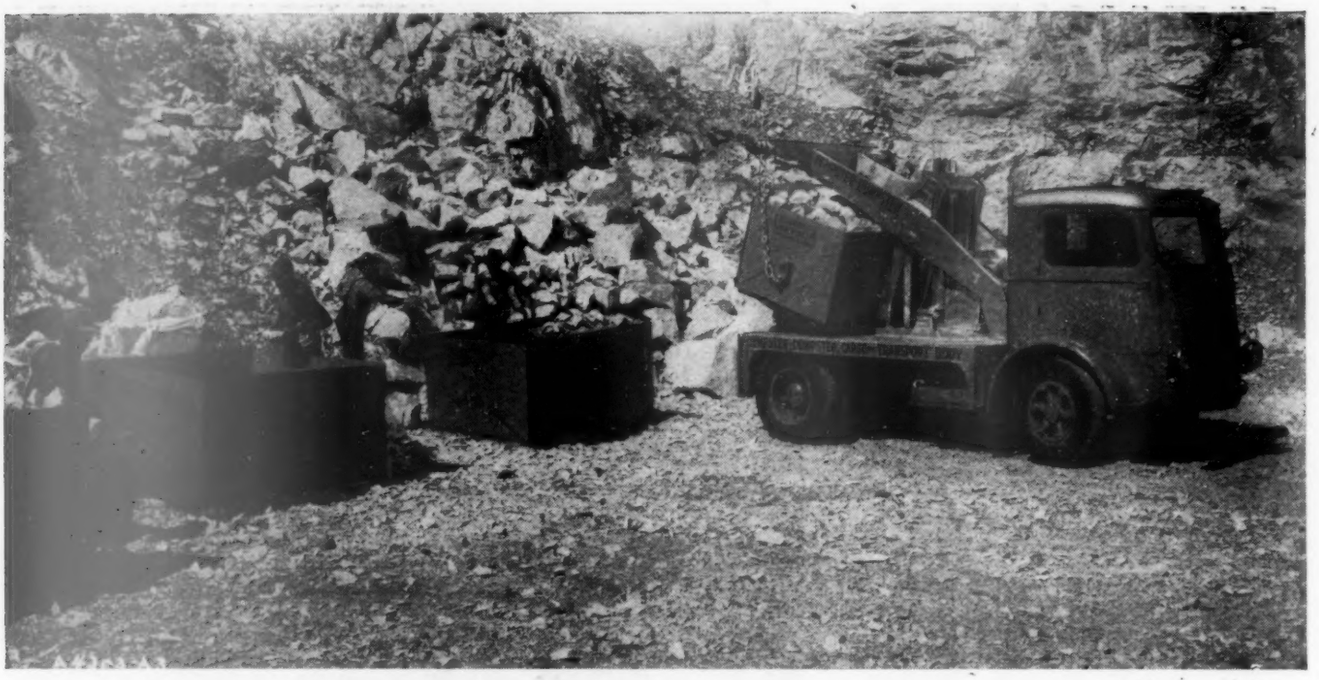
Write for Bulletins

Representatives in all principal cities in the United States and foreign countries including Ejido 7-503, Mexico, D. F.

ARMY E NAVY

2 PARK AVENUE • NEW YORK 16, N. Y. FACTORY: DANVILLE, PA.

YOU CAN MAKE 1946 A MORE PROFITABLE YEAR—



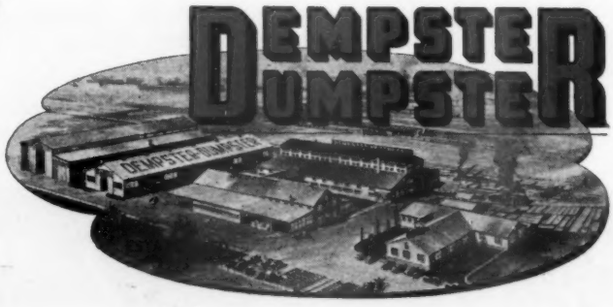
—with the DEMPSTER-DUMPSTER

Reduced costs . . . money saved, mean more profit earned and you can accomplish all three, this year, with the Dempster-Dumpster.

For example, if you are now working in your quarry with four or five conventional trucks for transporting material to crusher, the chances are you can do an equal amount of work with only one truck equipped with a Dempster-Dumpster Hoisting Unit and a few Dempster-Dumpster detachable bodies.

You can't avoid making tremendous savings, this year, with the Dempster-Dumpster System, because no other haulage system yet devised can equal the low cost method of the Dempster-Dumpster for saving trucks, tires, gas, maintenance and truckmen. In addition, greater loading production is assured because of the low waist-line height of bodies. It means a great saving in energy compared to high-level lifting of shoveling into ordinary truck bodies.

Regardless of the type of material you handle, there is a Dempster-Dumpster built to handle it. For reasonable prompt delivery, give serious consideration to the Dempster-Dumpster System now. Write for Free catalog showing every detail of how the Dempster-Dumpster can serve you. Dempster Brothers, Inc., 116 Shea St., Knoxville 17, Tenn.



Precisionbilt LIKE A GIANT REFLECTING TELESCOPE

J&L WIRE ROPE

PERMASET PRE-FORMED

A giant reflecting telescope is built with precision. J&L Permaset Pre-formed Wire Rope is also Precisionbilt by men of experience and skill using the finest materials.

J&L Wire Rope is made of J&L Controlled Quality steel. Our engineers will be glad to discuss your requirements with you. Write for further information.

J&L STEEL

JONES & LAUGHLIN STEEL CORPORATION

GILMORE WIRE ROPE DIVISION

PITTSBURGH 30, AND MUNCY, PENNSYLVANIA

J&L *Precisionbilt* PERMASET PRE-FORMED WIRE ROPE

How BG *Bucket Loaders* screen to size while loading..

• Screening and loading become one continuous operation with the Barber-Greene Bucket Loader. One machine and one operator do the entire job. The double deck vibrating screen operates right on the loader and moves with the loader, requiring no change of set-up as the working face progresses.

In addition, bank run material is loaded at the time and in the quantities actually needed. There are no piles of screened material scattered around to be run over by trucks and lost.

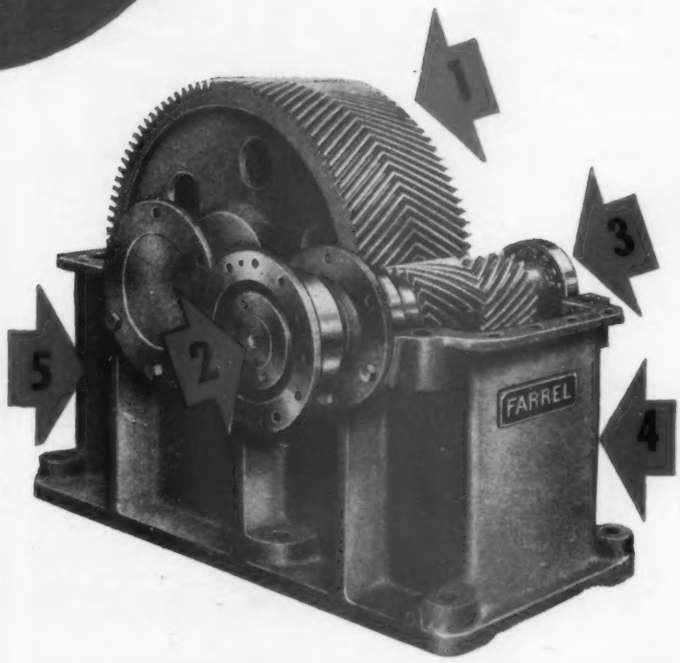
Barber-Greene Bucket Loaders, built in several different models and sizes, are designed to operate with scalping and vibrating screens and other accessories. Write for Catalog No. 82, which illustrates and describes the mechanical features of the loaders and their accessories. Barber-Greene Company, Aurora, Illinois.

46-14

BG Barber-Greene CONSTANT FLOW EQUIPMENT

LOADERS • PERMANENT CONVEYORS • DITCHERS • PORTABLE CONVEYORS • FINISHERS • BITUMINOUS PLANTS • COAL MACHINES

5 reasons



1. Gears are continuous tooth herringbone—the famous *Gear with a Backbone. Backbone,* the place where the helices meet, provides extra strength and load-carrying capacity. Accurate tooth contour, gradual engagement and oblique lines of contact assure correct tooth action, minimizing wear.
2. Precision ground shafts are designed to provide the rigidity necessary to prevent deflection and keep gears in exact alignment.
3. Roller bearings of adequate size for the job hold the shafts in precise alignment.
4. Heavy section housing holds rotating elements in original accurate alignment. Exterior ribbing at bearing points gives extra protection against deflection.
5. A continuous splash lubrication system provides ample oil supply to gears and bearings. A trough system of oil feed to the bearings provides a surplus flow with fixed regulation for ample supply. End covers and baffles at shafts prevent possibility of oil leakage, or entrance of dust and dirt.

WHY EFFICIENCY STAYS "YOUNG" IN THIS SPEED REDUCER

The power transmission efficiency of a new Farrel speed reducer is 98% to 98.8%. To preserve this original efficiency...to keep it "young" during long, exacting service, Farrel has designed in protection at 5 vital places.

This 5-point protection minimizes wear and assures the continuance of original power transmitting performance for many years of trouble-free operation.

Farrel Speed Reducers are available in a complete range of sizes for any application. Ratios of single reduction units range from 1½:1 to 10:1, double reduction units up to 60:1, and triple reduction units up to 180:1. For complete information write for catalog No. 438.

FARREL
The Gear with a Backbone

FB.279

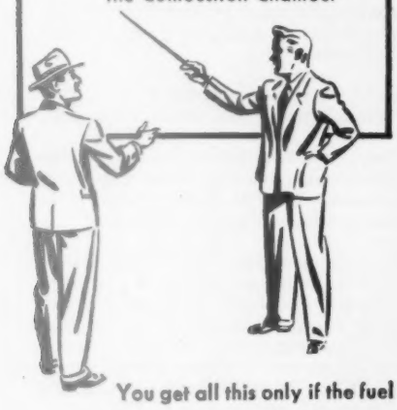
FARREL-BIRMINGHAM COMPANY, Inc.
344 VULCAN STREET • BUFFALO, N. Y.
Plants: Ansonia, Derby and Stonington, Conn., Buffalo, New York
Sales Offices: Ansonia, Buffalo, New York, Pittsburgh, Akron, Los Angeles, Tulsa, Houston, Charlotte

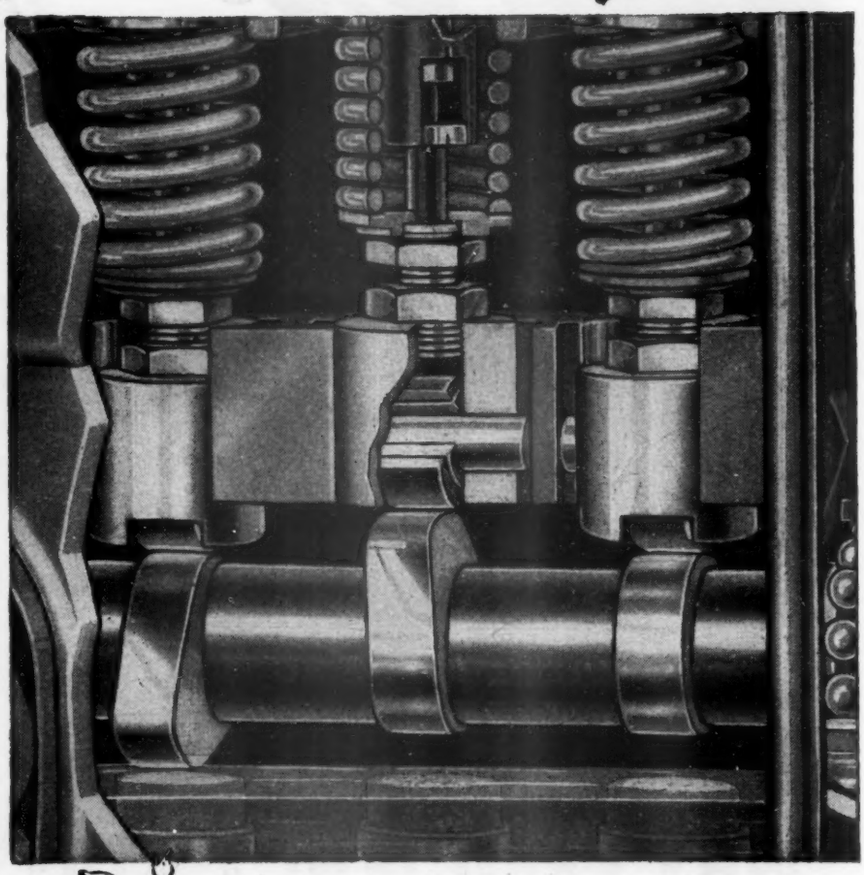
Farrel-Birmingham

GOOD FUEL INJECTION
Fits the Engine

GOOD FUEL INJECTION PROVIDES:

A. Accurate Metering
B. Precise Timing
C. The Correct Duration
D. A Spray Pattern Tailored to the Combustion Chamber





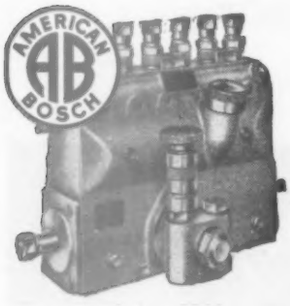
You get all this only if the fuel injection system has been engineered to fit the engine.

There are types of American Bosch injection equipment to suit all types of engines. The final engineering touches that make the equipment really *fit* involve the specially-designed or selected parts such as cams, plungers, delivery valves and nozzles.

●

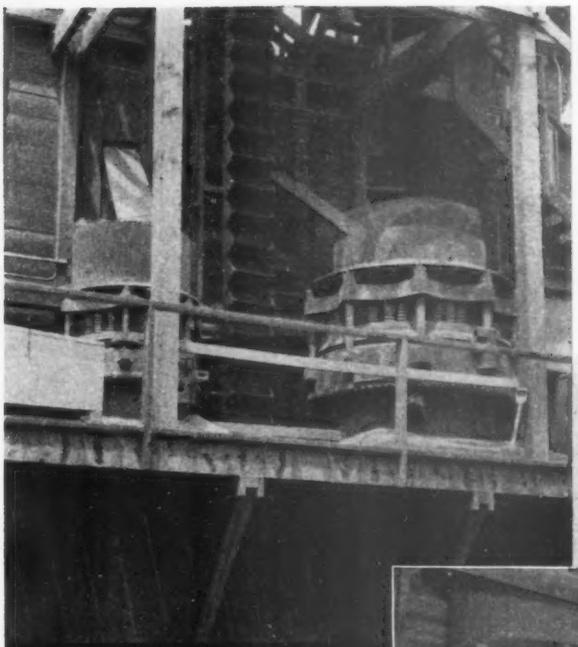
THESE CAMS in the fuel pump, for example, are vital. They contribute importantly to control of the rate and duration of injection. They are engineered to co-operate smoothly with other elements of the fuel injection system to produce precisely the type of spray called for by the engine design.

THEY CAN TAKE IT. If your engine has American Bosch injection equipment — the kind that is engineered to fit — you can be sure that it will perform to its very best in giving you economical service under any and all conditions.

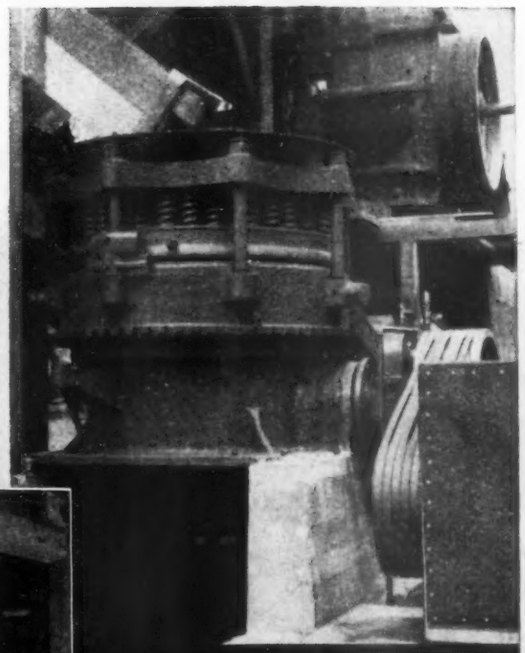


AMERICAN BOSCH CORPORATION, SPRINGFIELD 7, MASS.

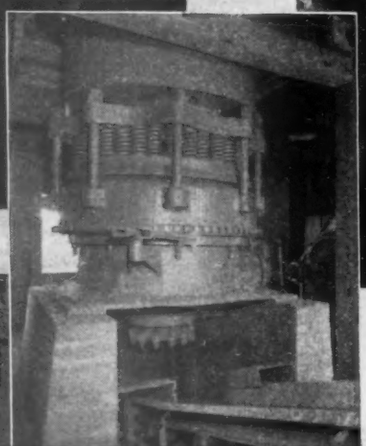
AMERICAN BOSCH
Diesel Fuel Injection



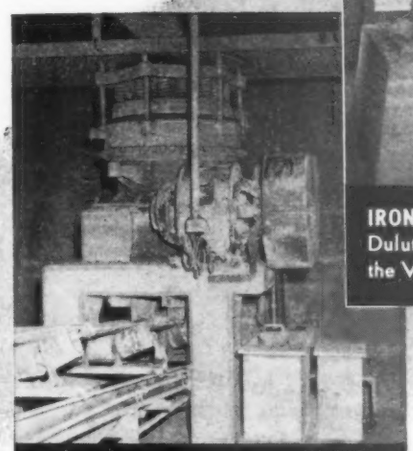
QUARRY PLANT—Arundel Corp., Baltimore, Md., operates six Gyrasphere Crushers of all sizes.



GRAVEL PLANT—Boston Sand & Gravel Co., Cambridge, Mass., operates this 48" Gyrasphere.



IRON MINE—Snyder Mining Co., Duluth, uses 48" Gyrasphere in the Virginia Mine, Eveleth, Minn.



CEMENT MILL — Diamond Portland Cement Co., Middle Branch, Ohio, uses a 24" Gyrasphere.

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PIT AND QUARRY

March, 1946
Vol. 38 No. 9

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EDITORIAL

Inflation Can Be Prevented

A YEAR ago, when the end of the war was still an objective not yet attained, the likelihood of a dangerous post-war runaway inflation appeared greater than it does to-day. Then we were faced with an enormous pent-up demand for durable and nondurable consumer goods, with huge and rapidly-accumulating savings widely distributed throughout the nation as the result of our having achieved nearly full employment, and with a scarcity of many kinds of goods that were badly needed. It seemed inevitable that the coming of peace and the reconversion of thousands of manufacturing establishments to the production of civilian goods would bring into the market millions of buyers with enormous purchasing power and an unwillingness to wait any longer for the gratification of the desires that had been held in check for four years.

Now these same types of purchasers, with incomes reduced or temporarily stopped by the delays of reconversion or by strikes in plants that are, in other respects, ready to resume the production of civilian goods, are restraining their natural impulse to buy. They feel uncertain about their re-employment and about the size of their incomes, if they should be called back to their old jobs or drawn into new ones. As a consequence they are unwilling to bid up the prices of scarce goods, while the cost of living rises slowly and there is still no assurance that prices will be controlled either by business or by government. The fear that existing price controls may be removed acts as a powerful brake on their desire to invest in capital goods, such as houses, and leads them to seek higher wages and greater economic security, even if these can be obtained only through strikes, which cut into their buying power as well as into their employers' production.

It is considered possible to raise wages materially in industry as a whole without making substantial increases in prices or cutting into profits, although the possibility of doing this will vary from industry to industry and from plant to plant within any single industry. Production costs incurred in making goods for civilian use will differ greatly from those at which the same or similar goods were made for use in war and marketing costs under present conditions are unpredictable. Nevertheless, economists who have access to enough data to enable them to form an intelligent opinion believe that industry in general will be able to increase its wage bill by as much as 10 or, possibly, 15 per cent., while maintaining present prices and without forcing profits after taxes far, if at all, below last year's levels.

The principle of controlling prices, which until now has been exercised principally by the government, has won the support of many business men who formerly opposed it. They have come to believe that a wave of unrelated price increases, such as would almost certainly follow the sudden removal of present restrictions, would start industry on such a wild scramble for the purchaser's dollar that we would experience an economic collapse even greater than the one which followed World War I. They believe that the interests of the country as a whole will be served best if price control is made the responsibility of the individual business man and if he discharges that responsibility with due regard to the long-term effects of his action on the country and on other businesses as well as his own. Others believe that the "free" competition which would follow the removal of price control would prevent or, at least to some extent, check the normal tendency on the part of some business men to take advantage of the scarcity of certain materials and the accumulated desire on the part of consumers to buy them and would result in the adoption of only nominal price increases. Price rises made too rapidly will stimulate speculative buying and result within a few years in a strangulation of demand that will throw millions of men out of work and reduce again the purchasing power that is essential to the profitable operation of all types of business. Intelligent business men are determined to avoid that if they can, and they see, more clearly than they or their predecessors saw after World War I, that the prevention of economic collapse is a responsibility that rests on them and that sensible price control, exercised by them in the form of self-discipline, is the most promising action for achieving that result.

The belief that business must pass through a series of unprecedented expansions followed by unprecedented collapses is less widespread than it was after World War I, and there is a rapidly-growing conviction that the future of this nation will be determined to a greater extent than ever before by what business men do. Stability of business is just as essential to a balanced economy as stability of employment and neither can exist in the absence of the other. If workers do not earn enough to enable them to buy the products of our industrial plants, we can not attain the volume of output on which the realization of a satisfactory profit depends. The results—reduced production schedules, wholesale discharge of workers, insufficient purchasing power, falling prices and shattered profits—are known to us all. The aftermath of World War I spelled them out in terms which even workers can understand.

If prices rise too much, purchasers will refuse to buy; if they do not buy, manufacturers will not produce; if they do not produce actively, they can not provide regular or even much temporary employment; if employment is neither widespread nor continuous, there can not be much consumer spending for items outside the bare subsistence class; if buying is limited to the necessities of life, industry as a whole can not thrive; and if industry can not flourish, profits will vanish. So pricing may be, as some believe, the most important of the three factors—wages, prices and profits—which determine the success of a business and the greatness of an industrial nation.

BUSINESS men who take a long-range view of their opportunities will raise wages and hold prices to the limit of their ability, even, if necessary, contenting themselves with a smaller total profit temporarily with the reasonable expectation that the resultant enhanced purchasing power will stimulate buying desires to such an extent that the resulting larger output will reduce unit production costs enough to justitfy both the raising of wages and the holding of prices. If enough business men can bring themselves to believe in the effectiveness of that policy—which is not new, let us add—the country can be spared the costs of inflation and another "boom-and-bust" cycle.

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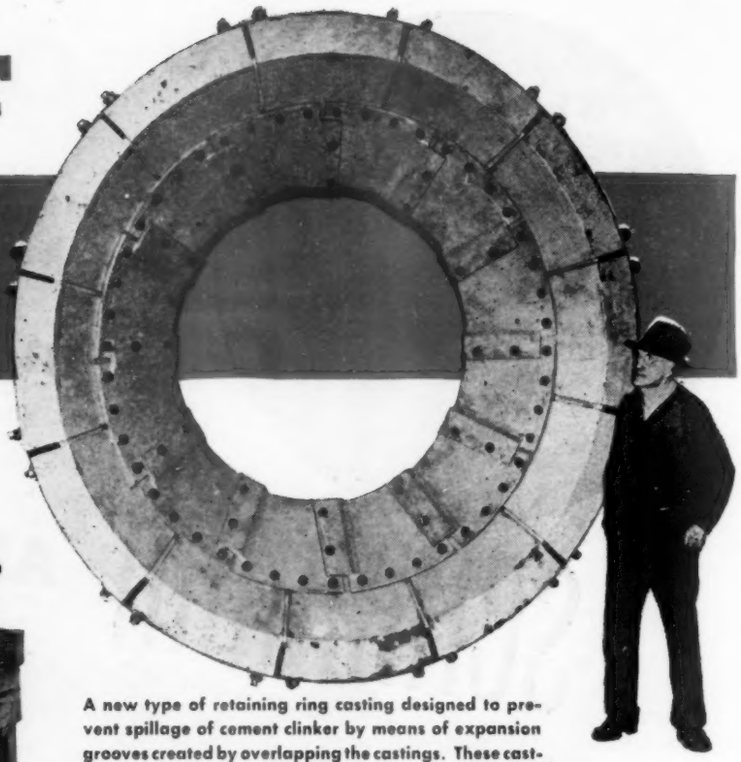

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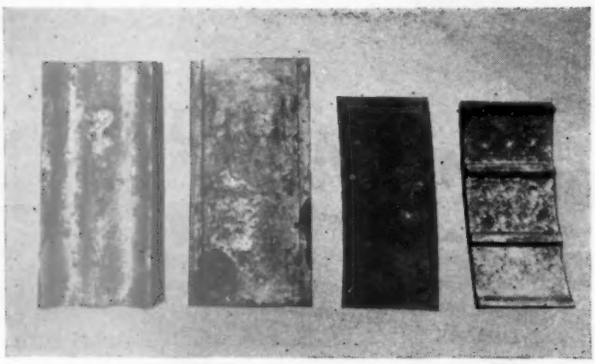

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PIT AND QUARRY

CHICAGO MARCH, 1946

Cement Workers Awarded General Wage Increase In Eastern Pennsylvania

More than 3,000 cement workers in the Lehigh-Northampton County area of Pennsylvania will receive a 15-cent-an-hour general wage increase under the terms of a new contract negotiated by the managements of ten firms and the United Cement, Lime and Gypsum Workers International Union (A.F.L.). The workers received an immediate increase of 8 cents an hour, plus an additional increase which will become effective April 1. Also included is a provision for two weeks' vacation with pay and rate differentials for second and third shift work in continuous operation departments.

Covered by the agreement are the Fogelsville, Ormrod and Sandts Eddy plants of Lehigh Portland; Alpha Portland, Allentown Portland, Valley Forge, Universal Atlas, Coplay, Whitehall, Giant Portland, Keystone Portland and National Portland.

Negotiations were instituted under a wage reopening clause in a War Labor Board directive. The contract expires April 1, 1947.

Missouri Portland Enlarges Its Memphis Plant

A $154,000 expansion and building program was recently announced by the Missouri Portland Cement Co. of St. Louis for its Memphis facilities. Work began at once on the construction of nine storage silos and a packing and shipping house. The new buildings are designed to give better service to customers in five states within the Memphis area.

Cement is shipped by barge from St. Louis, to be packed in Memphis for distribution throughout the Mid-South.

Teamsters to Sponsor "Spice of Life" Program

A new and sensational page will be added to the history of labor and public relations when 75,000 members of the Teamster's Joint Council No. 25, A. F. of L., launch a talent-packed radio variety program, "The Spice of Life," to be broadcast over WCFL, Chicago, each Sunday from 3:30 to 4:00 p.m.

"The Spice of Life" headlines Carl Schreiber's orchestra, Jack Fuller as master of ceremonies, Ruth Marion, popular songstress, and the Team Mates, a double quartet under the direction of Frank Bennett. Special dramatizations of stories behind the news will highlight the show.

Oregon Silica Sand Plant Called Surplus Property

Declared by the Federal Government as surplus property, the $156,000 silica and sand plant at Eugene, Ore., became available for sale or lease to private operators in January. The plant was operated by the Defense Plant Corporation during the recent hostilities. It is situated on a 10-acre tract and has a capacity of 5,000 tons of dry sand per month. The silica was widely employed in war production.

Granite Rock Waste Used To Make Poultry Grits

At Ten Acre Rock near Troy, Okla., the Pure Granite Co. of Dallas, Texas, has set up equipment for producing several sizes of poultry grits from granite. Here great quantities of granite are available at the Capitol Quarry. Pure Granite Co. officials will have at their disposal an immense pile of waste stone from earlier operations.

The crushed stone will be graded into sizes for turkeys, hens, pullets, baby chicks and canary birds. In addition to the grits, the company will manufacture blocks made from crushed granite.

Coming Events

March 28-30, 1946—*Hot Springs, Va.* Annual convention, National Lime Association, The Homestead.

April 3-5, 1946—*Chicago.* Annual meeting, Midwest Power Conference, Palmer House.

May 15, 16, 1946—*Hot Springs, Va.* Annual meeting, National Industrial Sand Association, The Homestead.

June 24-28, 1946—*Buffalo.* Annual meeting, American Society for Testing Materials and exhibit of testing apparatus and related equipment.

Louisville Cement Co. To Launch Vast Program Costing $1,500,000

Louisville Cement Co., Louisville, Ky., plans a three-year building program involving expenditures totaling $1,500,000, a third of which will be spent this year, according to Eugene D. Hill, president.

Employees of the firm have subscribed for $203,000 of an authorized issue of $250,000 in 6 per cent. preferred stock, the entire issue being held for the company's personnel.

It was disclosed that the company's plant at Speed, Ind., will get new boilers, a remodeled and expanded packing department and other items to cost approximately $420,000. Improvements in the lime plant at Milltown, Ind., will call for an outlay of $80,000.

Mr. Hill stated that contract for 500,000 barrels of cement for the Wolf Creek Dam construction provides a heavy backlog for the Portland Cement Division, but that probably not more than 20 per cent. of this order will be in 1946 sales.

$200,000 Plant Announced By Marquette Cement Co.

Plans for the erection of a $200,000 modern dustless cement storage plant in Chicago have been announced by the Marquette Cement Manufacturing Company of Oglesby, Ill. The plant will occupy a 3½-acre tract of land recently purchased from the Material Service Corporation of Chicago for a reported price of $90,000. The site fronts on the North Branch of the Chicago River. Cement is to be carried to the new plant by barge from the Oglesby mill.

Mineral Wool Producers View Vets' Housing Needs

At the annual meeting of the National Mineral Wool Association, held recently at the Hollenden Hotel in Cleveland, dealer members were urged to give first consideration on mineral insulating material to housing projects designed for returning servicemen. E. I. Williams, who was elected president at the close of the meeting, called attention to the possibilities for relieving the current housing shortage by insulating remodeled buildings not originally intended for permanent residences.

Marquette Cement Is Recipient of N.C.S.A. and P.C.A. Safety Awards

The Marquette Cement Manufacturing Co. has added new laurels to its already leafy collection of honors for its long safety record. At the 29th annual convention of the National Crushed Stone Association, held in Cincinnati January 28 to 30, Marquette's Cape Girardeau plant received the association's safety award for 1945 for having completed 84,374 man-hours of work without a lost-time accident.

For the fourth consecutive year the plant has won the safety trophy awarded by the Portland Cement Association. Upon two occasions the Joseph A. Holmes safety award has been given the plant for extended periods of safe operations. Ten years during the last 15 have been completed without one lost-time accident in any department.

In recognition of the plant's record, a National Safety Council "S" flag flies at Cape Girardeau. According to Anderson Hayden, safety engineer, over 2,950,200 man-hours of accident-free work have been piled up; and not one fatality or lost-time mishap has occurred since June, 1941. The U. S. Bureau of Mines has cited Marquette's record at Cape Girardeau each year since 1935.

1945 Mineral Production Increased in California

According to estimates of the Statistical Section of the Division of Mines Department of Natural Resources for California, the total value of mineral production in that state for 1945 is approximately $488,244,000. This figure is an increase of $18,470,000 over the 1944 total value of $469,774,525. It is the largest annual mineral output recorded.

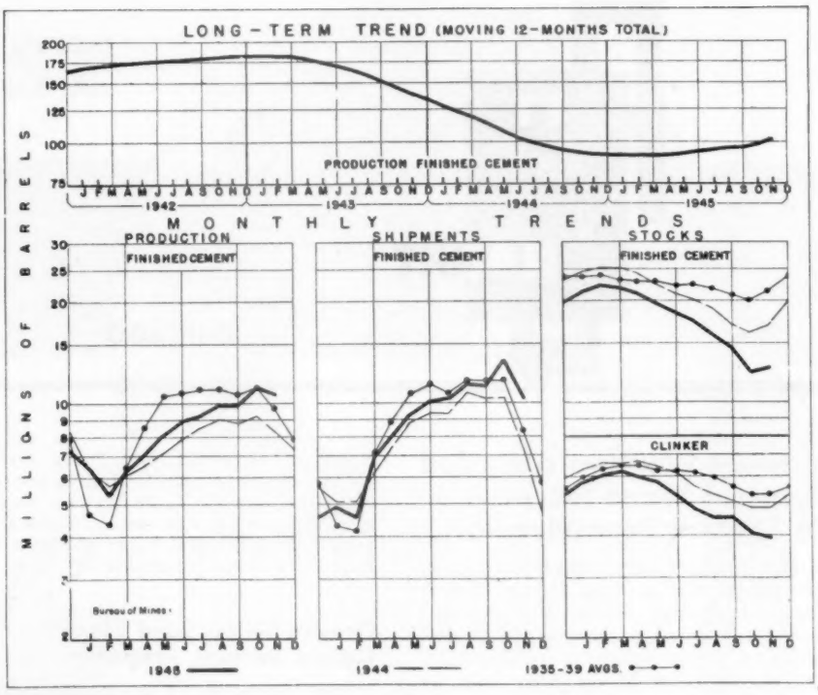
For important nonmetallic products the following statistics were given: cement, $25,696,000; miscellaneous stone (including crushed rock, sand and gravel), $23,500,000; other structural materials, $510,000; miscellaneous industrial materials, $11,700,000; salines, $18,210,000.

Tentative Date Set For Safety Exposition

Preliminary notices featuring the coming 34th National Safety Congress and Exposition have been released by the National Safety Congress. The tentative date for the meeting is the week of October 7; the place chosen is Chicago, with headquarters at the Stevens Hotel. Additional information will be issued later.

New York Trap Rock Corp. Acquires New Plant Site

The New York Trap Rock Corporation recently leased a tract of land at Cobleskill, New York, as a site for a new plant. Agstone for distribution to farmers in that area and crushed stone for railroad ballast and highway surfacing will be produced at the new location.



Production of 10,705,000 barrels of cement in November, 1945, reported to the U. S. Bureau of Mines was 29 per cent. above the total reported in November, 1944. Although the November, 1945, production represents a decrease of 399,000 barrels from the year's record output in October, it is higher than the 1935-39 average for November. All districts, in November, 1945, show an increase in production over that reported in the corresponding month of 1944. The increases range from 0.3 per cent. in Oregon-Washington to 53 per cent. in Texas and 106 per cent. in Puerto Rico. Mill shipments of 10,342,000 barrels were 40 per cent. above those reported in November, 1944. The decline of mill stocks continued, and the November 30, 1945, total of 12,748,000 barrels is 25 per cent. below that reported on the corresponding date in 1944. Clinker production in November, 1945, was 29 per cent. above that reported in November, 1944. The total production for 11 months of 1945 was 12 per cent. above the output in the same period of 1944. Operating activity continued to increase, as 54 per cent. of capacity was utilized in November, 1945, a rise of 12 per cent. over that given for November, 1944.

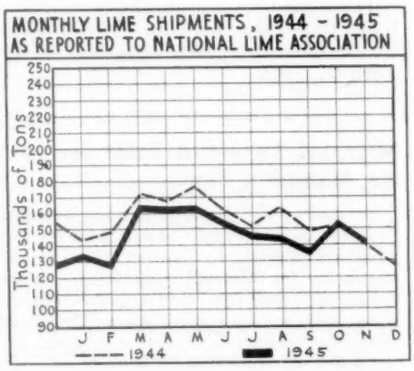
Federal Reserve Bank Releases Soil Booklet

From the research department of the Federal Reserve Bank of Cleveland, 4th Federal Reserve District, comes a timely publication which is of interest to those concerned with soil improvement. Entitled *Country Bank Action on the Soil Front,* the 28-page booklet, compiled by Phil S. Eckert, agricultural economist, deals with such topics as declining soil productivity, soil conservation districts, county land use planning, limestone requirements of soils, greater farm income through maintenance of soil productivity, yield changes with lime and phosphate applications.

The pamphlet suggests ways in which country banks may take a helpful part in rebuilding and maintaining soil productivity. It is illustrated with significant photographs and charts.

● Correction

The article describing new developments at Canada Cement Company plants published in the January issue of PIT AND QUARRY (page 88) stated incorrectly that five of the firm's operating plants are using the wet process. The statement should have read, "All six of the company's operating plants use the wet process."



According to data collected by the National Lime Association 50 companies in November, 1945, shipped 140,129 tons of lime (90,586 quick-lime; 49,543 hydrate). Reporting companies represent 42.1 per cent. of the association members' total capacity of record. Based on PIT AND QUARRY'S estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 366,000 tons. Shipments of lime by users for November, 1945, were:

Use	Quicklime (tons)	Hydrate (tons)
Agricultural	1,473	6,029
Building	7,687	21,992
Chemical	81,426	21,522
Total	90,586	49,543

Southern Cement Makers Get O.P.A. Price Hike Of 10 Cents per Barrel

By an Office of Price Administration ruling made effective on January 31, Southern cement manufacturers were given a 10-cents-a-barrel price increase, an action which made the ceiling uniform throughout the nation.

The increase was authorized after a conference among O.P.A. officials, industry representatives and several Southern congressmen. The O.P.A. had permitted a 20-cent increase in 1941 for all sections except the Southeast, which six months ago received a boost of 10 cents. The new schedule brings this section up to the nation-wide level.

Industrial Sand Group To Meet at Hot Springs

On May 15 and 16 the National Industrial Sand Association will hold its 11th annual meeting at Hot Springs. V. P. Ahearn, executive secretary of the association, urges members to arrange for accommodations at once by writing to the Homestead, headquarters of the meeting, and stating the kind of room or rooms desired, the time of arrival and other necessary information.

Home Construction Increases In Last Quarter of 1945

Gains in the number of new dwelling units involved in construction contracts awarded in the 37 states east of the Rocky Mountains in the fourth quarter of 1945 were reported by the F. W. Dodge Corporation.

The comparative figures of new dwelling units for the final quarters of 1945 and 1944 were 28,180 and 12,268, respectively. The sharp and contraseasonal gains in the final quarter were sufficient to make the total of new dwellings for the year 21 per cent. in excess of those provided in 1944, the 1945 total being 76,495 units. Approximately $1 out of every $7 involved in the 1945 residential contracts was for public housing, an analysis of the figures shows. Increases in commercial, manufacturing, educational, hospital and religious building during the year were also reported.

The total of all construction contracts awarded in the 37 states during the year was $3,299,303,000, as compared with $1,994,016,000 in 1944. The volume in 1945 exceeded that for 1943 also, and was at a level slightly in excess of that for 1938.

Workers' Retirement Plan Announced by Pennsalt

The Pennsylvania Salt Manufacturing Company of Philadelphia announced a company-financed retirement program which will affect all employees, including hourly workers, in its plants and offices from coast to coast.

Leonard T. Beale, president, said that the plan, immediately effective, will provide for the retirement of all employees at the age of 65, unless otherwise specifically ordered by the Board of Directors.

Under the retirement benefit plan, employees will be eligible for monthly payments of 1½ per cent. of the highest annual pay in the three years preceding retirement, multiplied by the years of service. The maximum monthly payments will be 40 per cent. of the highest annual pay less an amount equal to Social Security benefits.

Erie Stone Co. Reopens After 3-Weeks' Shutdown

The Erie Stone Co. at Huntington, Ind., reopened on February for production after it had been closed down nearly three weeks by the France Stone Co., the parent corporation, because of labor disturbances. After needed repairs had been made, the distribution of stone already crushed was begun. Crushing operations will be resumed in April.

Work had also been ordered halted in January at the following Indiana plants: the France Stone Co. in Logansport, the Erie Stone Co. at Bluffton, the Ohio & Indiana Stone Co. at Greencastle and the Midwest Rock Products Co. at Spencer.

Taylor Bros. Purchase Sand and Gravel Business

The sand-and-gravel business of Earl Gaines at Elizabethtown, Ill., was recently acquired by Taylor Brothers of Caruthersville, Mo., owners and operators of the Mississippi River ferries at Cottonwood Point and Caruthersville. The purchase price for the equipment, including a dredge boat, a tug and a barge, was $30,000.

$95,000 Building Project Announced by Medusa

The Medusa Portland Cement Company has announced plans for a building project in Milwaukee which will cost approximately $95,000. Six reinforced concrete silos are to be erected for bulk-cement storage; and packing facilities will also be installed.

SEE HERE

Are you concealing important information? Are you withholding news about yourself and your associates? Then break down and confess all! With industry swinging into its post-war stride, this is the time to sing — about such items as recent promotions and/or special honors, veterans returning from service, new appointments, changes in staff organization, new processes or products developed.. PIT AND QUARRY will welcome any information which you believe will interest producers of sand and gravel, crushed stone, cement, agricultural limestone and other nonmetallic minerals and their products.

O'Brien Stone and Gravel Plants Purchased by New York Trap Rock Corp.

O'Brien Brothers, Inc., of New York have announced their retirement from the sand-and-gravel business, which they carried on for several years through subsidiary and associated corporations. A sale of the properties at Cold Spring (Hudson River Stone Corp.) and in Port Washington Harbor to the New York Trap Rock Corporation was arranged recently. It is understood that the new owners will continue the operations of plants and pits as producers of crushed stone and sand and gravel.

New York Trap Rock's present annual crushed stone capacity, now in excess of 4,000,000 cubic yards on an 8-hour day basis, has thus been increased by 800,000 cubic yards. The firm's yearly output of sand and gravel will be brought to more than 1,000,000 cubic yards when the new sand-and-gravel plant at Port Washington is completed in June.

No announcement has been made concerning changes in the present staff of officers.

O'Brien Brothers will operate its floating equipment and shipyard on Staten Island, as in former years.

Sand Products Co. Moves Plant to Elberta, Mich.

Because the deposits at Manistee, Michigan, have been nearly exhausted, the Sand Products Company of Detroit is currently moving its equipment from that location to an area west and south of Elberta, Michigan. At the new site, a 200-acre tract acquired over a period of years, the firm will test for sand to fill its large-scale requirements. One of the largest consumers ordering from the company is the Ford Motor Company, which requires 500,000 tons of sand a year.

N. L. A. Reports Progress On Agricultural Project

The National Lime Association has released its report on results of the agricultural research work carried on for the association at the New Jersey Agricultural Experiment Station. This program, which was initiated on July 1, 1945, at the station, will extend over a five-year period and will include Pennsylvania, Maryland, New York and Ohio. Dr. Firman E. Bear is in charge of the association's Fellowship program. Experiments at the New Jersey station are being conducted by his assistant, John L. Malcolm.

Mexican Company Builds Lime Plant at Veracruz

At Calhidra Veracruzana, S. A. Veracruz, Mexico, a new lime plant is currently being constructed, according to word from Antonio Ruiz Galindo, director general.

Mr. Galindo states that the plant is expected to produce 100 tons of hydrated lime per day. Kilns of the vertical center-burner type will be employed. All equipment has been ordered and will be shipped from the United States.

Report Highway Progress, Cite Need of Stricter Materials Price Control

A beginning on construction of the Kittery-to-Portland section of the Maine Turnpike this spring was assured by completion of the sale of $15,000,000 in bonds by the Maine Turnpike Authority, according to announcement by Governor Horace A. Hildreth.

The super-highway project, which will be financed by tolls, can eventually extend from Kittery to Fort Kent under authority granted by the 1945 Maine legislature. The bond prospectus described the Kittery-to-Portland section as an express highway approximately 45 miles long between the two cities located generally parallel and west of U. S. Highway No. 1. Tolls ranging from 50 cents for passenger cars to $1.50 for semi-trailer trucks, will produce approximately $564,000 in revenue in the first year. It was further estimated that revenues will increase to $733,000 by 1948, plus $15,000 from concessions, or a total of $748,000 by 1948.

Governor Thomas L. Bailey recently signed into Mississippi law two bills pertaining to the state's proposed $60,000,000 to $70,000,000 highway construction program. The first bill continues the State Bond Commission and authorizes a $30,000,000 highway bond issue, while the other provides for a 4,400-mile farm-to-market road system, to be constructed as a part of the state program.

Montana's Supreme Court has unanimously upheld the constitutionality of the state's 1945 highway debenture act, authorizing the State Highway Commission to issue $12,000,000 in treasury debenture bonds for post-war highway construction and improvement. The court's decision opened the way for provision of Montana's share in the more than $40,000,000 post-war Federal aid program for construction and improvement of some 1,800 miles of highway in the state in the next three years.

Validity of the act had been attacked by Pioneer Motors, Inc., and Ford Johnson, both of Helena, who set forth 22 separate contentions of invalidity and unconstitutionality and asked the high state court to declare the statute invalid and grant a permanent injunction against its effectiveness.

Freedom from political interference in the purchase of materials was promised Kentucky road contractors by State Highway Commissioner J. Stephen Watkins in addressing the Kentucky Association of Highway Contractors at its annual meeting in Lexington.

As contrasted with the Kentucky Highway Department's plans to spend $60,000,000 in state and federal funds in the next two years, Mr. Watkins said that studies showed the need of a Kentucky road construction program totaling $150,000,000. He stressed particularly the need for improvment of 27,000 miles of rural roads.

A threat that the "states may have to enter the material and equipment manufacturing business in order to keep prices within the limit of highway building" was voiced recently by Hubert R. Gallagher, associate director of the Council of State Government, in addressing a conference of the New York Joint Legislative Committee on Interstate Cooperation and the Council of State Governments.

Mr. Gallagher declared that skyrocketing prices, unless checked in some way, would restrict post-war highway development to the purchasing of about one-third or one-half of what is outlined in present plans. Larger highway expenditures by cities also were urged by Mr. Gallagher, who said that large cities spend less of the tax dollar on street improvements than any other group.

Striking Workers Return After Winning Pay Raise

About 130 employees of the Fresno, Herndon, Selma, Lindsay and Friant, Calif., plants of the Grant Pacific Rock Co. and the Stewart & Nuss Co. returned to work on January 22 after a strike which began last November. By an agreement between the firms and the Fresno Building Trades Council, the workers won a wage increase averaging approximately 17 per cent. and double pay (instead of time and one-half) on Sundays and holidays.

The agreement also provides an arbitration board which is to prevent future work stoppages. This board is composed of two company representatives, two from the trades council and a fifth chosen by the other four.

Keystone Staff Meets For 3-Day Conference

Supervisory employees of the Keystone Portland Cement Co. of Philadelphia met for a three-day session at Allentown, Pa., the last week in January. Representatives from the Atlantic states as far south as Virginia attended the meetings.

They were addressed by H. M. Scott, president of Keystone, who described the part played by the cement industry during World War II and gave a forecast on expected developments.

Natl. Lime Association To Hear Specialists At Annual Convention

The National Lime Association will meet for its first post-war convention on March 28, 29 and 30 at The Homestead, Hot Springs, Virginia. A directors' meeting will precede the general sessions. No convention has been held for the last three years.

Speakers at the general sessions will include Dr. William Rudolfs of Rutgers University; D. E. Parsons, chief of the Division of Clay and Silicate Products, National Bureau of Standards; Professors W. C. Voss and H. R. Staley of the Massachusetts Institute of Technology; and Dr. Firman E. Bear of the New Jersey Agricultural Experiment Station.

Dust Collectors Installed By Aetna Portland Cement

At the Aetna Portland Cement Company plant, Bay City, Michigan, Sly dust collectors were recently installed in the current remodeling project, scheduled to be completed next year. Two storage silos, loading equipment for bulk cement and additional dust collectors also will be put in.

The Giant Portland Cement Company of Philadelphia has announced the removal of its offices from the Pennsylvania Building at 15th and Chestnut streets to the Architects Building, 17th and Sansom streets.

Portable aggregate plants are here to stay. If you are interested, the Pit and Quarry Handbook will tell you all about them.

Pictured above are the "Caterpillar" diesel DW10 tractors and LaPlant-Choate scrapers used by the R. A. Heintz Construction Co. of Portland, Ore., for loading, hauling and dumping heavy rock gravel while relocating Pacific highway 99E between Salem and Albany, Ore. About 9.8 miles of new highway were built to eliminate 4 miles of sharp curves, hills and a narrow road. The haul was 1¼ miles; the average load, 9 cubic yards. Five trips were made each hour of a 15-hour work day. Note plant at extreme left.

F. B. McBath Elected President of A.E.D. At Convention in Chicago

The 27th annual convention of Associated Equipment Distributors, held at the Edgewater Beach Hotel in Chicago from January 28 to 31, proved to be the largest in the association's history. Although registration was limited this year to members only, the gathering totaled nearly 1,500 distributors and manufacturers. Representatives were present from points as far distant as London, Puerto Rico and Honolulu.

F. B. McBath of the Columbia Equipment Co., Portland, Ore., who was elected A.E.D. president for 1946, hailed the unprecedented attendance as "proof that the industry is ready to undertake the greatest heavy construction program in history. . . ."

The delegates were saddened on the last day of the convention when word came of the sudden death of Hamilton O. Penn, retiring president, at convention headquarters. Mr. Penn had taken an active part in the program and was stricken with coronary thrombosis only a short time before his death.

Messages were received by the officers from President Truman, Governor Green and other nationally known officials. Among the speakers who addressed the convention were G. M. Just of the International Harvester Co.; J. T. Calloway of the Goodyear Tire & Rubber Co.; Harry A. Dick, president of the Gilpin Construction Co.; P. B. Reinhold of the Atlas Equipment Corp., Pittsburgh; Senator W. L. Morse, a former member of the War Labor Board; A. E. Paxton, publisher of *Engineering News-Record* and *Construction Methods;* Carol F. Winchester, executive secretary of A.E.D.; Henry Miller, director of the Trade Practice Division, Federal Trade Commission; G. W. Gagel, president of Machinery & Supplies Co., Kansas City; J. H. Gorman, president of Tractors, Inc., Providence, R. I.; and Colonel J. S. Cooke, vice-president of the War Assets Corporation, Office of Consumer Goods, Washington, D.C.

Officers elected for 1946 are as follows: F. B. McBath, president; W. A. Danner of the Parker, Danner Co., Hyde Park, Mass., executive vice-president; A. F. Garlinghouse of Garlinghouse Brothers, Los Angeles, vice-president; W. J. Kane of the Kane-Gibb-Marr Co., Winnipeg, vice-president; W. W. Bucher of the R. E. Brooks Co., New York, treasurer; C. F. Winchester, Washington, D.C., executive secretary.

A. E. D. officers for 1946. Left to right: C. F. Halladay, Western Material Co., Sioux Falls, S. D., vice-president; C. F. Winchester, Washington, D. C., executive secretary; W. W. Bucher, R. E. Brooks Co., New York, N. Y., treasurer; W. J. Kane, Kane-Gibb-Marr Co., Winnipeg, Canada, vice-president; F. B. McBath, Columbia Equipment Co., Portland, Ore., president; W. A. Danner, Park-Danner Co., Hyde Park, Mass., executive vice-president; the late H. O. Penn, H. O. Penn Machy. Co., New York, N. Y., retiring president.

Wheeler Limestone Co. To Run 80 Tons Per Hour

The Wheeler Limestone Company plant near Williamstown Junction, Kansas, owned by Delbert Wheeler, is nearing completion. Mr. Wheeler stated that the plant will have a capacity of about 80 tons per hour of commercial lime and crushed rock and a bin capacity of 250 tons.

Everock Products Co. Producing Mineral Wool

A new Tacoma, Washington, rock wool plant, the Everock Products Company, is scheduled to begin operation in the immediate future. Owned by C. H. St. Johns, Everock is unique in that it is reportedly the first mineral wool insulation plant in the United States to have its own electric furnace. The factory is said to be one of few such plants in the northwestern part of the country.

Public Relations Program Sponsored by Engineers

Inauguration of a public relations program by the American Society of Civil Engineers is announced by Colonel William N. Carey, secretary and executive officer. Colonel Carey stated that the 93-year-old engineering society will endeavor to make the general public more familiar with civil engineers and their work nationally and in their respective communities.

Allen Wagner, public relations director of Minnesota Mining and Manufacturing Company, has been named public relations assistant to Colonel Carey.

Seismology Expert Aids Producer to Win Defense Against Damage Claim

Dr. L. Don Leet, associate professor of seismology at Harvard University, who recorded the earth's vibration from the first test of the atomic bomb, was introduced as a witness for the defense in a recent property damage suit brought against the William J. Barry Company, a crushed-stone producer of Roslindale, Mass. Property damage to the 13 plaintiffs was alleged to have been sustained from nearby blasting operations of the company. Attorney Harold Williams served as defense counsel.

Professor Leet testified that he made a test, using the same seismograph as was used in the atomic bomb test, in the house of one of the plaintiffs, which is about 500 feet from the ledge where the Barry company is blasting. The jury was shown a photograph of the record made on his instrument by the blast and Dr. Leet testified that the ground had moved only 17 one-thousandths of an inch. This, he declared, was not enough to inflict the damages claimed. He further explained that to injure plaster walls or ceilings, the earth's movement would have to be five times as great as that recorded, which would require 25 times as much dynamite as was used. As a result of Dr. Leet's test and testimony, the jury denied damage claims against the Barry company.

United Cement Mill Co. Suffers $5,000 Fire Loss

A five thousand dollar fire loss was suffered by the United Cement Mill Co. at Wichita, Kans., owned and operated by Ralph C. Cowan, on January 2. The blaze was reported to have originated in the boiler room, where a gas explosion occurred in a fire-box. Equipment was damaged to the extent of $3,000, and the loss on the building was estimated at $2,000.

World's Largest Quarry Adds 50-Cu. Yd. Cars

The Michigan Limestone & Chemical Co. of Rogers City, Mich., has purchased several new air-operated one-way dump cars in a special model made by the Pressed Steel Car Co., Inc. of Chicago. The cars have a 50-cu. yd. capacity, a 50-degree dump and roller-bearing trucks.

The San Francisco Chemical Company is constructing a plant at Montpelier, Idaho, for the grinding of phosphate rock. The mill is believed to be the only one of its kind in the state.

Dust collection is rapidly becoming one of the most important problems in the nonmetallic minerals industries. See the Pit and Quarry Handbook for complete information.

WASHINGTON NEWS LETTER

another P and Q exclusive

THE outstanding development of the past month was the announcement of the long-awaited Government wage-price policy. In the sense that it provided an immediate basis for settlement of the nation's major strikes, the new formula was necessary and effective. On the other hand, the "policy" which finally emerged from weeks of vacillation and indecision must be regarded as no more than a mouse to the lion which had been heralded by long and loud fanfares of advance publicity. The enabling Executive Order bears all the marks of the fierce internal dissension which occurred among the President's top economic advisers. Everything is to be done negatively. Price control is to be maintained by judicious bulging of the line. Wages are to be controlled by withholding price relief from producers who raise wages without approval, and by limiting such approval to those wage and salary increases which are "consistent with the general pattern of wage and salary adjustments . . . established in the industry or local labor market area" since last August. No provision is made for settlement of wage disputes. Great reliance as the chief persuader of industrial peace is implicitly placed upon the price-increase bait in those cases where a company or industry, because of wage increases, would not earn in the ensuing year a rate of profit on net worth equal to its peacetime average. Just how persuasive this degree of profit insurance will be is open to question.

In the attempt to appease all parties the Administration has come up with a weakened wage-price program. As a stop-gap measure to bridge the period of greatest inflationary danger until production catches up with demand, the mechanism may be workable. It is possible that after the initial wave of "moderate" wage and price advances, a quiet period will follow, during which attention can be turned to boosting production up to the point where it will meet current as well as deferred demands. If this happens, the damage done by still another retreat on the anti-inflation front will not be particularly severe. However, there are many in Washington who feel that this viewpoint reflects more a state of wishful thinking than a realistic prospect, and certainly there is reason to believe that the pressure for wage and price increases will grow rather than diminish in the months ahead. Wages in the coal mines come up for review in the near future, and this would serve as an interesting test of the stability of the new wage-price line.

It is important to note that broad authority for making exceptions to the general policy has been written into the President's Executive Order. Consequently the interpretation and application of the Order, rather than the literal provisions themselves, will be the all-important determinants of the success or failure of the program. In the last analysis this boils down to a resolution of the same conflicting viewpoints within the Administration which were responsible for the delay in promulgating the new policy. In breaking the deadlock, the President promoted Chester Bowles, the strongest anti-inflation figure in Washington, to the job of Stabilization Administrator, and appointed Paul Porter, an official with much the same price-policy as Mr. Bowles, to fill the shoes of the latter in OPA. But at the same time Mr. Truman has also retained John Snyder — who is known to differ strongly from Bowles' position on price control—as Reconversion Director with an unspecified degree of coordinating control over the stabilization activities of the Federal Government. Thus the President's reconciliation of the opposing schools of thought was hardly clear-cut, and on the first major issue that arises, it is probable that the Chief Executive himself will once more have to step in if any decision is to be forthcoming.

* * *

One of the most significant things about the new policy is the fact that despite all the efforts of the Administration to avoid it, increased Government control over the economy has finally been recognized as the only available remedy for the economic problems the country faces. It is now openly admitted that the removal of controls over production and distribution, wages, and to some extent prices, after V-J Day was premature and went much too far. By bitter experience the Administration feels that it has learned the impossibility of coping with the complex problems of the transition period by relying alone upon the natural resilience of the economy. The decision to reimpose economic controls after a period of relative freedom has been extremely difficult to make, particularly in an election year. But the recent wage-price order is only a harbinger of regulations still to come.

Present official estimates indicate that steel, the basic commodity of industry, will be in extremely short supply for some time — probably through 1947—and plans are now being prepared to crack down in earnest on inventory hoarding as the first step toward making additional supplies available. The ambitious residential construction program recently announced by Housing Coordinator Wilson Wyatt has pointed up the necessity for channeling the available supply of scarce materials to urgent end uses. Final plans have not yet been worked out for implementing Mr. Wyatt's program, but there is every indication that allocation controls will be added to priority and set-aside regulations in order to insure an adequate flow of building materials. Furthermore, if, as now seems likely, the achievement of the housing objective necessitates curtailment of industrial and other non-residential construction, it may well prove necessary to institute an extensive preference rating system for all such projects. Whether such a system would be administered largely through a central organization in Washington or at the local level is one of the problems on which no decision has yet been reached. There is general agreement among all the agencies concerned that Mr. Wyatt's stated aims are impossible of accomplishment without more direct government control over the distribution of most construction materials. The regulations now under discussion, although still tentative would go considerably beyond anything heretofore contemplated.

Construction of highways included in the $1,500,000,000 post-war highway bill approved by Congress in December, 1944, now may proceed, with the passage of a concurrent resolution by the House and Senate an accomplished fact. This resolution authorized $270,000,000 of Federal aid, highway funds frozen since the beginning of the war, for immediate use. Moreover, all Federal aid projects interrupted by the war now may be completed.

MEN OF THE INDUSTRY

James (Jim) Savage N.C.S.A. Director For Three Decades

Many of the members of the National Crushed Stone Association and other producers know that James Savage—"Jim" to most of them—has been a director of that association since its organization in 1917, and that few, if any, have been active in this industry for a longer period. He has also been a member, since its inception, of the New York State Crushed Stone Association. His accomplishments in other fields are not so well known, due to his innate modesty; and some of them, we believe, are being related here for the first time.

Born in Buffalo, New York, on February 28, 1869, of English and English-American parents, Mr. Savage went from Buffalo public schools to the University of Michigan, where he studied civil engineering in the class of 1893. After following engineering work for some years he became engaged in crushed-stone production in 1903 and in 1904 organized and became half owner of the Buffalo Crushed Stone Company, of which he is now secretary and treasurer.

Much less is known in this industry of his life-long interest in birds, which began in the early '80's, when he joined the Buffalo Naturalists' Field Club, later serving as its president. Later he became corresponding secretary of the Buffalo Society of Natural Sciences and has served continuously as a director and for the past twenty years also as its vice-president. This society, organized in 1860, owns the collections in, and manages the affairs of the Buffalo Museum of Science.

In 1895 Mr. Savage became an associate member of the American Ornithologists' Union and in 1934 was elected a full member. He has served two terms as a member of its council and is currently also a trustee and life member. He is also honorary president of the Buffalo Ornithological Society, a director of the Audubon Society of Buffalo, a life member of the National Audubon Society, Cooper Ornithological Club, Nelson Ornithological Club, and a number of conservation clubs and associations.

He modestly states that his contributions to the current literature on ornithology have been few but admits having made some discoveries of interest. His greatest source of satisfaction from this field of interest has been derived from rambles through fields, woods and marshes

James Savage

with kindred spirits, studying not only birds but trees, flowers, grasses, and reptiles, as well. Another hobby, photography, in which he has been interested since 1888, has served to record much of what he has observed.

The above would seem enough to keep one man busy, but Mr. Savage also has other hobbies. He hunts with a gun as well as a camera and belongs to the Buffalo Trap and Field Club and the Buffalo Shooting Club. He goes duck hunting in season and still holds his own in trap- and skeet-shooting competition. Golfing in the summer, bowling in the winter, and swimming the year 'round help to keep him in good physical condition.

By his own admission Mr. Savage is a "joiner" and at one time was a member of 34 organizations. He pared the list to 16, but it is climbing again to nearly the larger figure. Some of the other organizations not yet mentioned include: the Rotary Club; the Buffalo Historical Society; the Buffalo Public Library; the Buffalo Chamber of Commerce; the Buffalo City Planning Association; the Greater Buffalo Advertising Club; the Automobile Club of Buffalo, of which he is treasurer; the Erie Downs Golf and Country Club; the Isaac Walton League, etc. He is also a warden of St. Thomas Church and a member of the Buffalo Athletic Club, where he maintains bachelor quarters.

Sen. Caudill Defends Diesel Quarry Machinery

A bill was introduced in the 1946 Virginia legislature by Senator W. C. Caudill to permit the use of diesel-powered equipment in limestone mining operations, which he said was needed by quarries in his district. The use of inflammable oil for fuel in Virginia mines is forbidden under the present law.

Huge Overburden Deposit Moved at Marquette Site

A face-lifting operation of major proportions is currently being performed on the surface of the Marquette Cement Manufacturing Company's site at Cape Girardeau, Mo. Approximately 250,000 cubic yards of overburden is to be removed from the east side of the main quarry and carried 2,000 feet to an old quarry hole.

The layer, which ranges from 30 to 55 feet in depth, is approximately 1,000 feet long and ranges from 50 to 300 feet in width. The work is being done with a new 2-cu. yd. diesel shovel. Four 15-ton rubber-tired wagons will be used to remove the overburden. Three are equipped with crawler-type tractors and the fourth with a Euclid truck tractor.

The Pit and Quarry Directory lists all the important nonmetallic minerals producers, both alphabetically and geographically. It is distributed free only to those listed in it. To all others the price is $15.00 per copy.

Dominican Gypsum Output Shows Steady Increase

Production of gypsum by the Salinera Dominicana, C. por A. (also the salt producer of the Dominican Republic) has been greatly increased to supply the requirements of the Ponce cement plant at Ponce, Puerto Rico. The material is transported by schooner to Puerto Rico. The 1944 gypsum exports of Santo Domingo totaled 2,146 metric tons. This figure also represents total production.

A 24-page booklet entitled *Build It With Asbestos* has been distributed by the Asbestos Farm Service Bureau. The uses and characteristics of asbestos cement products for farm construction and repair are explained in the publication, which may be obtained free upon application to the bureau at 221 North LaSalle Street, Chicago 1.

CALIFORNIA FIRM SAVES BY LOCATING NEW RIP RAP PLANT NEAR JETTY PROJECT

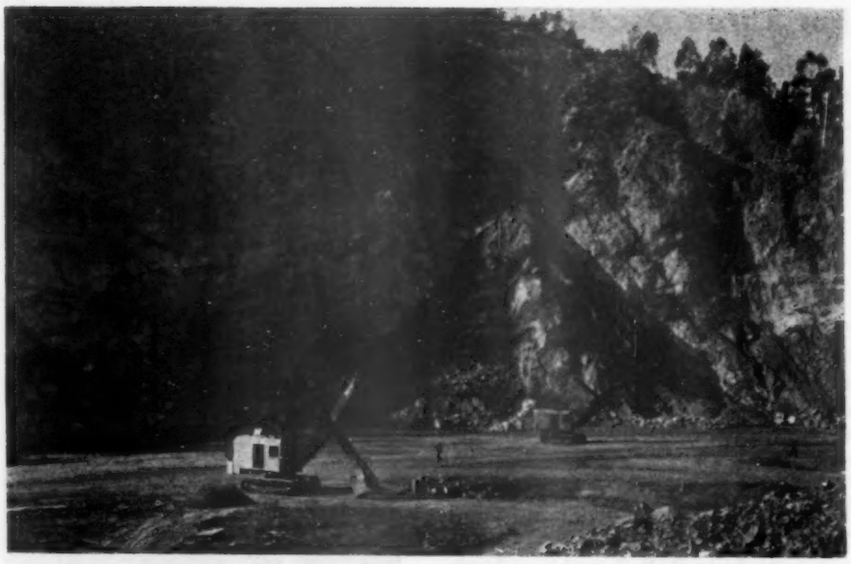
another ON THE SPOT report

WHEN the Basalt Rock Company of Napa, California, took a contract last year for supplying more than 600,000 tons of rip-rap stone for the construction of jetties at the Alameda Naval Air Base on San Francisco Bay, it was already producing rock of this type at its Napa River operations. While this deposit was easily accessible by water, the 40-odd-mile tow wasted so much time in transit that the company decided to utilize an excellent deposit of quartzite on McNear's Point for that purpose and proceeded to erect a modern plant at the "Point" to fulfill the requirements of the contract.

The new plant and quarry are only a little more than 10 miles from the Alameda project by water route and considerable time and expense are being saved under the new set-up. The original contract was increased a few months ago to more than 1,000,000 tons and when this is completed late in 1946 other harbor-improvement projects are in prospect which will keep the plant operating for an indefinite period.

The plant, which has a "big rock" capacity all the way from 750 to 1,000 tons per hour, went into operation on July 10, 1945. It is located directly on San Francisco Bay, a few miles east of San Rafael, and almost straight north of the city of San Francisco. All shipments are made by water.

Of all-steel and concrete construction, the plant was designed primarily for the production of jetty stone but it can and probably will be revamped at some later date to allow the efficient production of commercial aggregates, either alone or in conjunction with the large-sized rock. Under present operation it is, of course, unnecessary to wash the material and none of the output smaller than 3-inches in size is being utilized. The minus-3-inch size product is, therefore, being stockpiled for future processing into commercial stone.



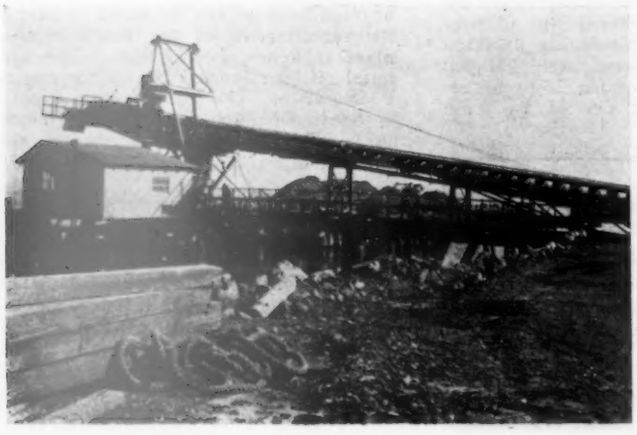
View in Basalt Rock Co. quarry, showing a face over 200 feet high.

By HARRY F. UTLEY

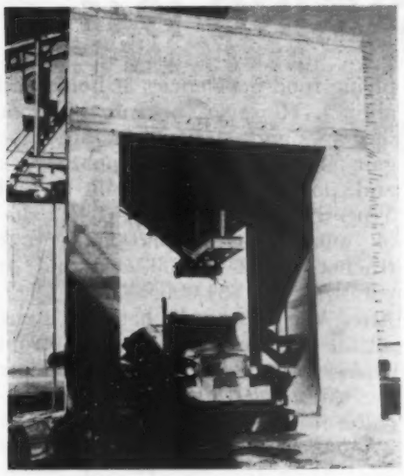
Two quarry faces (which will eventually be joined) are being worked, one being about a ¾-mile round-trip haul to the plant and the other, closely adjoining the plant, being about half that distance. Some stripping has been necessary, trees and brush being uprooted by a LeTourneau ripper and removed by a Carryall scraper. Much of the exposed face is extremely high, well over 200 feet. The deepest 9-inch hole drilled by the Bucyrus-Erie 29T well drills to date has been 232 feet and 200 and 210-foot holes are regularly bored. Secondary shooting is done to a limited extent only, jackhammers being used to drill the plugholes. All shots are planned so as to avoid the creation of too much undesired fine material.

A fleet of ten Cummins Diesel-powered Euclid quarry trucks is used for intraplant transportation. Seven of these are quarry-type rear-dump units which carry the rock from the quarry, the remaining three being bottom-dumpers used for other service. Three excavating machines are

Below, left: Barge-loading conveyor extending from the bunkers to the dock. Right: Seven of the ten units of the fleet of trucks at the McNear Point operations.



used interchangeably in the quarries, the largest being a 5-cubic yard Bu-



Steel and concrete-block bin from which stone smaller than 3 inches in size is carried to open storage by trucks.

cyrus-Erie 120B electric shovel. The other two are identical Northwest 2½-cubic yard gasoline-powered shovels.

Arriving at the plant, the Euclids ascend a paved earthen ramp of broad proportions, back around and discharge their 15- to 20-ton loads into a hopper equipped with a 6- by 12-foot Traylor (Sheridan) reciprocating feeder which puts the rock into the Traylor 48- by 60-inch jaw crusher. A short, baffled stone ladder eases the drop of the crushed material onto the 48-inch by 300-foot inclined belt conveyor which carries it up to a screen over the loading bunkers. Since the discharge opening of the crusher is set at 12 inches, some large chunks emerge and, to keep these from falling off the belt while enroute, steel retainer boards were installed along the entire run.

A sloping grizzly composed of 4-inch manganese-steel bars takes out the larger rock, from 4 inches up to as much as 2 feet in diameter, which is chuted into one section of the two-compartment bunker bin. The grizzly "troughs" are passed to a 4- by 8-foot Seco double-deck vibrating screen with 4-inch openings on the top and 3-inch on the lower deck. The stone retained on these decks drops into a second compartment of the loading bin. All material passing through the Seco screen is being wasted as previously metioned, being carried by a short belt conveyor to a concrete - masonry - inclosed steel truck-loading bin which serves merely to feed the Euclid bottom-dump trucks with 25-ton loads of minus-3-inch stone which is hauled away to stock piles.

From the bunkers the 3-inch to 2-foot rock is carried to the dock where it is loaded into barges. This is accomplished by means of a 31 by 8-foot vibratory feeder which transfers the rock from the bunker gates to a 48-inch by 275-foot belt-conveyor running in a concrete tunnel below ground level. Near the end of its run this conveyor inclines from the horizontal to make loading into the barges possible. All conveyors in the plant are equipped with heavy-duty Goodyear belting and Stephens-Adamson rolls.

Besides the crushed rock, a considerable amount of so-called "A" rock is also shipped by barge. This consists of chunks weighing from 1½ to 6 tons which are loaded directly into the Euclid end-dump trucks in the quarry and discharged into barges from a special truck ramp overhanging the dock. The cable-supported ramp automatically adjusts itself to the rise and fall of the tide by special electrically-controlled drums around which the cable is wound.

The barge fleet consists of six vessels with carrying capacities up to 1,000 tons. Two of these are flat steel barges for transporting "A" rock; two are self-unloaders of the conveyor type designed and built by the company; and two are bottom-dump scows. They are towed to and from Alameda diagonally across the bay by Diesel-powered tug-boats.

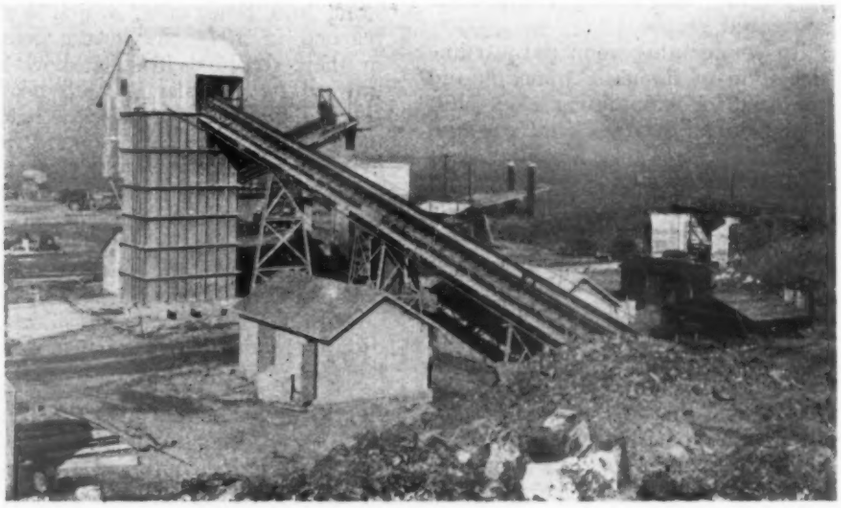
Power for the plant is brought in by the Pacific Gas & Electric Company and is stepped down to 440 volts for all motors excepting those on the electric shovel where the voltage is 2,300.

Barges tied up at the dock, loaded with "A" rock.

John Meloni is superintendent of the McNear Point operations and before coming to this plant was superintendent of the Haydite plant of the McNear Brick Company, located just over the hills from the plant here described. Main offices

(*Continued on page* 93)

Below, left: The 48- by 60-inch jaw crusher, showing lubricant lines. Right: The conveyor leading from the crusher to the screen over the bunker bins, with loading ramp in the distance.



REPORT SHOWS INCREASE IN U. S. OUTPUT OF NONMETALLIC MINERALS DURING 1945

THE value of minerals and mineral products in the United States and Alaska in 1945 exceeded the $8,000,000,000 mark for the third consecutive year, former Secretary of the Interior Harold L. Ickes announced recently. On the basis of preliminary estimates prepared by the U. S. Bureau of Mines, their value was $8,067,000,000.

Compared with 1944, last year's total mineral production showed a 4.6 per cent. decrease, resulting largely from a reduced output of metals, according to the estimates of the Economics and Statistics Branch of the Bureau. On the other hand, both mineral fuels and other nonmetallic minerals showed an increase in 1945 over 1944.

The Bureau revealed a number of other interesting facts concerning the nonmetallic minerals output, some of which we present as given in the report.

The production of nonmetallic minerals other than fuels increased 4 per cent. last year, rising from $900,000,000 in 1944 to $940,000,000 in 1945 despite the decline in military requirements. A higher demand for fertilizers and a welcome revival of the demand for building materials were responsible for this increase, according to the Bureau. New records were established for potash, sulfur, barite, feldspar and bromine production, and there were gains over 1944 in the output of cement, sand and gravel, building stone, slate, clay and clay products, gypsum, phosphate rock and pyrites. The production of lime, refractory materials, salt and talc was moderately lower in 1945, while major declines were recorded for magnesite, magnesium compounds, mica and graphite.

In commenting upon the wartime depletion of domestic minerals and the need for maintaining a self-sufficiency in all strategic and essential minerals, Mr. Ickes pointed out that studies by mining engineers and geologists of the Department of the Interior reveal that the depletion of many of our important minerals is far advanced.

Mr. Ickes pointed out again the urgent need for active measures that would promote the conservation of our known remaining mineral wealth and the development of new and hitherto untouched reserves. Calling attention to the importance of minerals to our peacetime industrial structure, as well as to our needs for national defense, he stated:

"We must stockpile strategic and critical minerals on a large scale so as to provide insurance against dangerous deficiencies in the years ahead. We must intensify exploration for new resources and stimulate research to find cheaper and better ways of using resources now considered sub-marginal. I am of the opinion that trade barriers all over the world must be reduced in the interest of our economic well-being and to foster world trade. However, until safeguards are fully established that assure us supplies of vital minerals in the event of another emergency, I believe that the common defense of the nation requires that we should proceed cautiously in adopting measures that would restrain the prudent use of our resources and in reducing tariffs that now assist in giving us a large measure of self-sufficiency in the highly strategic mineral raw materials."

Further details on mineral production in 1945, as reported by the Bureau of Mines to Mr. Ickes follow:

Building Materials Cement shipments increased from about 96,000,000 barrels in 1944 to 105,000,000 in 1945. The value of total sales increased 13 per cent. Sand and gravel, which are used chiefly as aggregates, increased about 7 per cent. to more than 200,000,000 tons. Stone used as aggregate also increased, but stone for certain other major uses, specifically fluxing and agricultural limestone, declined considerably; hence the over-all figure for stone was substantially the same as in 1944. Building (dimension) stone and slate sales, which had reached in 1944 the lowest points in their recorded history, show an upward trend. Sales of both heavy clay products and raw clay made moderate gains. The demand for gypsum products, which was sustained remarkably well through the war, climbed slightly upward in 1945. Demands for building lime continued weak, and sales for both chemical and agricultural use declined. The total value of output dropped about 8 per cent. to $44,800,000.

Fertilizers The demand for fertilizer materials, already strong in 1944, continued to climb because of the growing need of supplying food deficiencies at home and abroad. However, because of labor shortages and restricted facilities, the gain in output of phosphate rock and potash salts was only 2 and 5 per cent., respectively. The value of total sales of phosphate rock reached about $22,000,000 and of potash salts $31,000,000 in 1945. After the close of the war some nitrate supplies were diverted from explosives manufacture to fertilizer use. Although the demand for agricultural limestone was strong, wet weather hampered distribution, and total sales fell considerably below the record high of nearly 19,000,000 tons in 1944.

Refractories Furnace activity in 1945 declined, particularly in the latter part of the year; hence the trend in sales of dead-burned magnesite, dead-burned dolomite, fire clay and silica brick was downward. As the output of magnesium metal declined drastically, the total output of magnesite dropped nearly 50 per cent. For the same reason magnesium chloride requirements were so reduced that the output of all magnesium compounds dropped more than 60 per cent.

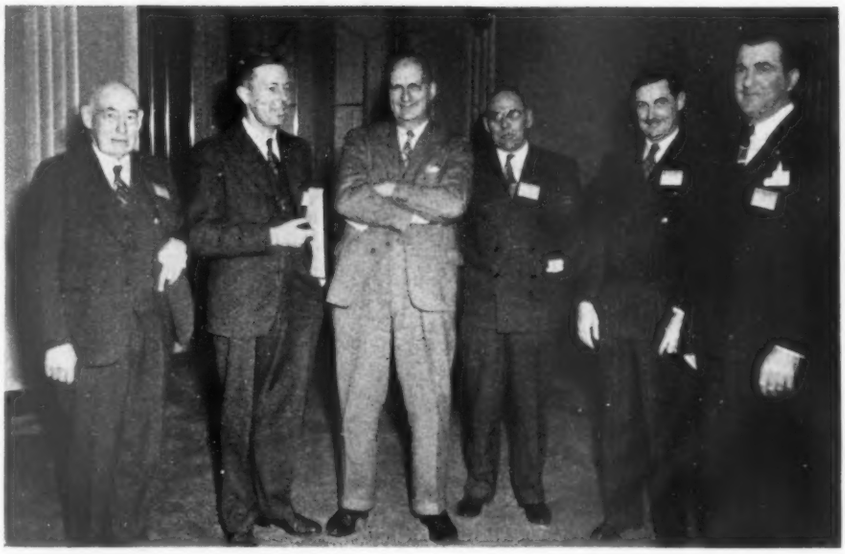
Chemical Raw Materials The agricultural, household and most industrial demands for salt were well maintained in 1945, but the metallurgical and some of the chemical uses declined. The result was an over-all drop of about 3 per cent. from the all-time high of 1944. Total value of sales reached about $44,700,000. The chemical and particularly the fertilizer demands for sulfur stimulated an increase of 9 per cent. in the value of sales which reached about $61,600,000, an all-time high. Pyrites sales increased slightly. Barite was in heavy demand, particularly for drilling muds. The requirements of the lithopone and barium chemical industries were also high. As a consequence, barite sales made a remarkable advance of 35 per cent. above the all-time high of 1944. Sales value reached about $4,800,000. Because of strong glass and fertilizer requirements, sales of boron minerals increased moderately. Sales of bromine, important in the manufacture of anti-knock gasoline, were 3 per cent. greater than the all-time high of 1944. On the other hand,

(Continued on page 93)

Practical Solutions for Operating Problems Worked out by N.C.S.A. At 29th Annual Meeting in Cincinnati

another ON THE SPOT report

THE 29th annual convention of the National Crushed Stone Association, held at the Netherland Plaza Hotel in Cincinnati, Ohio, on January 28, 29 and 30, presented a well-balanced program of sessions keynoted by thorough treatment of down-to-earth operating problems. The turbulent labor situation, foremost problem confronting all branches of industry today, was discussed by such able speakers as Senator Wayne Lyman Morse of Oregon, L. Metcalf Walling, Wage and Hour Administrator, and John C. Gall, former counsel for the National Association of Manufacturers. G. A. Austin, president of the Consolidated Quarries Corporation, Decatur, Georgia, was elected president of the association for 1946, to succeed Fred O. Earnshaw.



Left to right: James Savage, Buffalo Crushed Stone Co., Buffalo; Nelson Severinghaus, Consolidated Quarries Corp., Decatur, Ga.; J. Reid Callanan and Orville Van Alstyne, Callanan Road Improvement Co., S. Bethlehem, N. Y.; Jack B. Bond, Nordberg Mfg. Co.; G. A. Austin, Consolidated Quarries Corp., Decatur, Ga., new president of the National Crushed Stone Association.

Board Meetings The outgoing board of directors of the National Crushed Stone Association, presided over by retiring President Fred O. Earnshaw (Carbon Limestone Company), held its last meeting on the afternoon of January 27. Mr. Earnshaw introduced J. C. Lauber, representing a new member, the Trap Rock Company of Minneapolis.

The date and place of the association's next annual convention were discussed and referred to the new board for further consideration.

Engineering Director A. T. Goldbeck, Field Engineer J. E. Gray and Administrative Director J. R. Boyd presented summaries of their reports the full texts of which were made available to the convention at the first session on the following day. Mr. Boyd said that about 50 member companies have been subscribers to the Field Engineer Fund, which makes Mr. Gray's work possible.

In answer to a question raised by a member of the board Mr. Boyd said that the United States Circuit Court for the Tenth District had just reversed the decision of the Federal District Court in the Schroeder case, holding with the employer.

On January 30 the incoming board of directors held its first meeting with President G. A. Austin in the chair. Accepting the recommendations of the Nominating Committee, the board elected as treasurer James Savage (Buffalo Crushed Stone Company), as secretary, J. R. Boyd, as engineering director A. T. Goldbeck, as administrative director J. R. Boyd, as field engineer J. E. Gray, and as representative of this board on the board of directors of the Agricultural Limestone Division Otho M. Graves (General Crushed Stone Company). As honorary members the board elected A. J. Blair, John C. Gall, John Rice, Sr., and Harold Williams.

The problem of providing permanent financing for the office of Field Engineer was discussed and referred to the Executive Committee, as were also the questions of where and when to hold the midyear meeting of the board and the 1947 annual convention of the association.

Regional Reports The opening meeting on Monday, January 28, was presided over by Fred O. Earnshaw (Carbon Limestone Co., Youngstown), president of the National Crushed Stone Association. First he read the reports on business conditions of the various regional vice presidents of the association. These reports indicated that there was little change from 1944 to 1945 in either the volume of demand or in the price received. In most areas the demand was up as much as 15 per cent. and the biggest drop reported in any area was 10 per cent. The biggest price increase reported was in Connecticut where the OPA granted a 20 per cent. increase in June. All reports indicated an increase in volume for 1946 but some believed that more labor would be necessary than is now available, not only for the contemplated construction projects but for the production of the stone as well.

Engineering Reports Engineering Director A. T. Goldbeck began his annual report with the statement that it would be the shortest one he ever made, because of personnel and material shortages in his department. In addition to attending various engineering society and board meetings and publishing a number of papers Mr. Goldbeck found time to guide tests on proportioning, subgrade pressure distribution, stability and durability of bituminous pavements, etc. Time was

also found to help individual producers with their problems.

Mr. Goldbeck then described the methods used in making tests of the subgrade pressure under bituminous pavements which demonstrated that there is a variance in the ability of various materials to spread such loads. Angularity, he said, seems to be an advantage. In describing some of the other work done by his department he also mentioned the field trips made in connection with this work as well as those made by the field engineer. Also mentioned was the new Technical Advisory Committee which held its first meeting the preceding night and made a number of good suggestions for important work to be done.

Field Engineer J. E. Gray then made his first annual report which he opened by telling of the problems involved in the transition to this work from his former position as testing engineer. He said that his most important function is now to offer technical assistance to producers and to make known to them the results of research being carried on. He cited a case where a crushed stone producer wanted a large contract. The data on the stone was obtained by a personal visit and the necessary tests are now being carried out in the laboratory.

Mr. Gray in his travels also sounded out producers' attitudes toward local meetings of the association. He found that many areas want them but that there is a wide variation in the types of meetings desired. Some producers, he said, want large general meetings while others want small ones at which one specific subject would be discussed. He invited all members to express their opinions so that the necessary arrangements could be made.

Director's Report Administrative Director J. R. Boyd then made his annual report. The financial condition of the association, he said, is excellent. The new Agricultural Limestone Division, only eight months old, already has 140 members and at its present rate of growth will soon be able to carry its share of the expense.

Mr. Boyd then informed the members that the association has outgrown its headquarters in Washington and must move to larger quarters if the needs of its members are to be met. He mentioned one location available which would have sufficient space and yet be readily accessible from downtown. In closing he said that the equipment problem of the industry is not serious and that ample equipment for all important needs should be available early in 1947. Producers can get a "CC" rating for emergency replacement and for the elimination of bottlenecks in their plant flows.

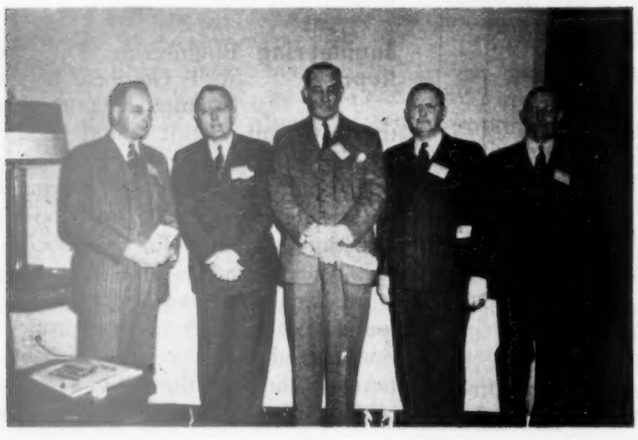
Construction Outlook *Postwar Construction Outlook* was the subject of the first guest speaker on the program, H. E. Foreman, managing director of the Associated General Contractors of America. He said that the construction industry faces the biggest demand ever known but that long delays due to strikes could conceivably plunge the country into a depression. His own attitude he described as neither optimistic nor pessimistic but the problems we face are great and the transition is a difficult one. The 1946 need for construction, he said, is far ahead of the ability to supply due to the material and labor shortages. The plans are ready for much of this work and ample funds are available. He urged everyone to cooperate in trying to get the most important construction projects under way first.

Mr. Foreman then quoted Gen. Fleming's announcement that bids are generally running far above estimates and that this may keep the government from letting any but the most vital jobs. He replied to this statement to the effect that contractors do not want higher costs but that the uncertainty as to controls and the future availability and cost of materials and labor, force them to make higher bids than would be necessary if conditions were more stable and predictable. He mentioned one contract recently let by the U. S. Bureau of Reclamation where it absorbs 65 per cent. of any increase in wages after the first six months of the job. This contract, for the Davis Dam, made possible a calculated risk and was awarded.

Mr. Foreman said that the delay in getting bids on important jobs is putting a pressure on municipalities to do the important work with their own forces, including the production of the necessary aggregates. He warned that if individual producers and contractors do not meet the needs the government may try. This year, he said, is a crucial one and its effects will be felt for years to come. The public confidence built up by an enviable war record must be maintained, said Mr. Foreman, and he urged everyone to co-operate in getting things going.

Greeting Luncheon At the Greeting Luncheon on Monday, with Russell Rarey (Marble Cliff Quarries Company) presiding, Cecil B. Dickson, chief, Washington Bureau, Gannett Newspapers,

A group of Iowans; left to right: William F. Sharpe and William D. Dillion, Dillion, Sharpe & Co., Centerville; Sid P. Moore Concrete Materials & Construction Co., Waterloo; Paul M. Nauman and Clarence L. Schuster, Dubuque Stone Products Co., Dubuque.



Left to right: R. G. L. Harstone, Canada Crushed Stone, Ltd., Hamilton, Ont.; Abe Goldberg, Allis Chalmers Mfg. Co., Milwaukee; O. D. Tatum, Campbell Limestone Co., Greenville, S. C.; R. T. Lassiter, Bryan-Monroe Co., Raleigh, N. C.

spoke on *The International and Washington Scene.* The speaker's remarks revealed a concern about the role to be played by the U.S.S.R. in the years to come and referred specifically to the fear of Russia on the part of neighboring countries, a fear which he believed to be fully justified. He felt that the United States should approve the proposed loan to Great Britain, whose shores we "shall" have to use as a beachhead in the next war "against Russia." He believed, too, that this country has lost prestige in world affairs by the reduction of its Army and Navy.

Mr. Dickson cited as evidence of the generosity and kindness of Americans the fact that we are feeding our defeated enemies.

With respect to the national scene the speaker said that the budget presented with the President's recent speech had made provision "for everything the C.I.O. wants."

He told his audience that business men spend too much time on their businesses and too little on good government and that they must participate to a greater extent in government or government will dominate both labor and business. He added that business men do not go to Washington to testify in hearings on important public questions because of their fear of "sticking their necks out and looking foolish." America is the last free-enterprise country in the world, he added, and the American people must begin to think about their government if they want to preserve the private-enterprise system.

Airport Construction The first speaker introduced by presiding officer, N. E. Kelb, at the Monday afternoon meeting of the National Crushed Stone Association was Phillips Moore, Chief, Construction Section, Civil Aeronautics Administration, Washington, D. C. Mr. Moore reported on *The Federal-Aid Program for Airport Construction.* He disclosed that legislation, in the form of two bills, has been passed by the House and the Senate. Though differing somewhat in their requirements, both bills are designed to promote an extensive post-war airport program.

According to Mr. Moore, the main difference between the two bills is the method of channeling and the allocation of funds in the various states. Appropriations of $375,000,000 and $650,000,000 over a 5 or 10 year period remain to be settled. Both bills provide for an immediate $3,000,000 to prepare preliminary estimates and complete the National Airport Plan which is to be submitted to the Congress for the appropriation of construction funds.

Mr. Moore stated that a report on airport needs was submitted to the Congress which should adequately cover future aviation progress. Estimates of this progress reveal the need for 3,000 additional airports and the improvement of some 1,600 of the 3,000 now in existence. The acquisition of land and construction of terminal buildings, not including hangars, is expected to cost $250,000,000. He also advised that both small and large airports shall receive funds according to their needs and importance.

Ted Oberhellmann, Dixie Mchy. Mfg. Co., St. Louis, and R. P. Immel, vice-president, American Limestone Co., Knoxville, Tenn.

Experiments were said to indicate that airport pavement design is determined by the type of aircraft service. Some airports with which Mr. Moore has contact, require the minimum of 40 per cent. crushed aggregate for bituminous surfaced runways, and 100 per cent. crushed aggregate for aprons, taxiways, and runway ends. In the construction of base courses, the macadams and crushed aggregate bases were reported to have a satisfactory service record. Requirements for these aggregate bases specify that 60 per cent. of the fractions coarser than No. 4 shall have at least one fractured face.

In conclusion, Mr. Moore remarked that low cost paving will be required and in certain classes of airports, unpaved fields may be used. The low cost pavements will require some surface treatment and stone was said to have the advantage for this work. Efforts will be made to produce surface treatments of a much denser texture than is used on ordinary roadwork.

Airport Design The speaker introduced at the Monday afternoon session was R. R. Philippe of the Cincinnati Testing Laboratory, War Department, Cincinnati, Ohio. Mr. Philippe reported on *Airport Design as Revealed by Army Load Tests.* The design of airport runways necessitates constant research and testing in order to develop specifications for runway pavement and construction, and also to prepare for future requirements which will change with the advancement of aviation.

The determining factor for specifying concrete mixes and construction methods to be used in airport runways is the weight of the planes or the wheel loads of the planes making use of these runways. Mr. Philippe stated that plane wheel loads have increased six-fold during the war, from approximately 10,000 pounds to 60,000 pounds on the B-29's and present paving design is based on 150,000-pound wheel loads. He further indicated that 250,000-pound wheel loads will have to be coped with in the future.

Experiments were made, using static loading on test runways at Dayton and Columbus, Ohio. These test slabs were constructed of varying thicknesses of base course with each section joined by different types of joints. The speaker said that the experiments revealed a definite relationship between concrete and base course thickness for specific wheel loads to minimize distress in the runway. Actual measurements of stress in center loading of static loads were comparable to previous calculations, which were based on Dean Westagard's theory. In edge loading, the stress measurements were less than the theory or calculations indicated.

In cases where overload is anticipated, steel reinforcing will prolong the life of the concrete, and no granular adhesion should be present in the base course. In his closing statement, Mr. Philippe said that while test results were comparable to theory and calculations of stress, it must be borne in mind that all tests were made with static loading and not dynamic loading.

Pavement Durability J. F. Barbee, Engineer of Concrete and Cement Tests, Testing and Research Laboratory, Ohio Department of Highways, took the floor at the Monday afternoon session and

discussed *The Effect of Air Entrainment on the Durability of Concrete Pavement in Ohio.* Lantern slides were used to illustrate some of the specimens examined in gathering information for his report.

From experiments, studies, and observations, Mr. Barbee determined that in order to obtain greatly increased resistance to freezing, thawing, and scaling, the percentage of entrained air should be specified to be not less than 3 per cent. Since his observations did not indicate flexural failures due to reduction in strength at 6 per cent., he advised this to be the maximum amount that can be safetly entrained. He believes that air entrainment is not the absolute solution for scaling and deterioration, and suggested that only the best cements and aggregates be used in air entrained concrete.

Continuing, Mr. Barbee explained that segregation is materially reduced by air-entrainment, but observations indicate that segregation is often increased in concrete mixed in transit and delivered by chutes. To eliminate this, he suggested the use of baffle plates either in or at the bottom of the chute. In closing, he expressed the belief that if his observations were made a part of regular concrete practice, another step would have been taken along the road to a truly durable, resistant concrete.

Price Control *Price Control on Construction Materials* was discussed by William L. Pringle, Building Materials Price Branch, Office of Price Administration. Maximum Price Regulation 592, through Sections 16 and 17, provides means for giving price relief to producers of construction materials. Under Section 16 an individual producer whose supply is essential or low-priced may be granted a price to cover (1) manufacturing cost, (2) total cost, or (3) total cost plus a profit depending on whether his current over-all dollar profits are (1) more than 15 per cent. greater, (2) equal to but not more than 15 per cent. greater, or less than his dollar profits in the base period, 1936 to 1939, after making adjustments for changes that have occurred in his net worth. A manufacturer whose product is neither essential nor low-priced may be granted a price that will cover his total cost, if he is operating at an over-all loss.

Under Section 17, Mr. Pringle said, a uniform adjustment for all the manufacturers in a local area who customarily sell at a substantially uniform price may be made, if it is necessary to maintain a supply of the product they make. The limitations set up in Section 16 are considered by the O.P.A. in making an area adjustment. One method, which is used where it does not produce inflationary results as compared with individual adjustments, grants to all the manufacturers in the area the highest amount required under Section 16 for manufacturers who produce the majority—about 75 per cent.—of the total output. Mr. Pringle pointed out that area adjustments do not always give to each producer the price increase needed to relieve his individual hardship condition.

E. J. Krause, president of the Columbia Quarry Co., St. Louis, who missed his first convention in many years, due to illness

Applicants for individual relief should file their data with the Regional Office of the O.P.A. if their sales are under $1,000,000 a year, or with the Washington office, if their sales are greater. All applications for relief under Section 17 should be filed with the Regional offices.

Building Material Area Orders, the speaker explained, provide dollars-and-cents prices for all important building materials in each important size and specification. They will cover all the sales made to ultimate consumers or to purchasers who buy for resale on an installed basis.

These price determinations are designed to replace the vague ceiling prices now in effect as the result of formula, freeze or margin regulations formerly used and to provide a firm basis for more effective control of contractors' prices and actual construction costs. Ultimately this program will aid in checking rising building costs which caused the collapse of the construction industry after World War I.

The speaker said that the O.P.A.'s policy is to remove price control as soon as it appears that such action can be taken without causing prices to rise above the ceilings. When supply generally is in balance with current demand at ceiling prices, he added, O.P.A. will be "only too anxious to suspend price control."

On the subject of "purchaser of the same class" Mr. Pringle said that these may be buyers classified on a functional basis—such as contractors, municipalities, railroads, etc.—or individual customers who prior to and including March, 1942, had been receiving a special price. In the latter case no increase is permissible, regardless of how low the price has been, provided that the pricing at the low price had been continuous.

Manufacturers' Division The annual business meeting of the Manufacturers' Division of the National Crushed Stone Association was held in conjunction with a breakfast Tuesday morning. Following the call to order and the roll call, the minutes of the previous meeting were read and approved. Irwin F. Deister, of the Deister Machine Company, made a report for the Resolutions Committee which led to an extensive discussion of the exposition policy of the Division and the N.C.S.A.

In Mr. Deister's report it was resolved that: the Manufacturers' Division desires a continued policy of holding the conventions of the N.S.G.A. and the N.C.S.A. in the same city, the same hotel, and in consecutive weeks; the Manufacturers will have joint exhibits at the two conventions every other year, or in the years in which there is no National Road Show exhibit, the first exhibit to be held not later than 1948. J. R. Boyd, Administrative Director of the N.C.S.A., questioned the strict adherence to a policy of holding the two conventions in the same city and hotel in consecutive weeks, and suggested this resolution not be adopted until the association could take the matter into consideration in discussing the location of the 1947 convention. He advised that he could not guarantee the Division that the N.C.S.A. convention would

be held in Los Angeles next year as the N.S.G.A. plans to do. It was decided to present this policy in the form of a suggestion to the association to be considered in planning future conventions.

Officers of the Manufacturers' Division for the coming year selected by the nominating committee and accepted by the Division are as follows:

Chairman: J. B. Terbell, American Manganese Steel Division, The American Brake Shoe Co., N. Y.

Secretary: J. R. Boyd, Administrative Director, National Crushed Stone Association.

Vice-Chairmen: Cott Farrell, Easton Car & Construction Co., Easton, Pa.; R. C. Johnson, Simplicity Engineering Co., Durand, Mich.; J. Craig McLanahan, McLanahan & Stone Corp., Hollidaysburg, Pa.; L. C. Mosley, Marion Steam Shovel Co., Marion, Ohio; C. H. Roberts, Traylor Eng. & Mfg. Allentown, Pa.; J. A. Trainor, Taylor-Wharton Iron & Steel Co., High Bridge, N. J.

Bituminous Concrete Following the breakfast meeting of the Manufacturers Division, the Tuesday morning session opened with a talk on *Some Bituminous Concrete Difficulties and Their Solutions* which was presented by Lloyd Burgess, Engineer-Director, Bituminous Concrete Producers Association of Columbus, Ohio. Oversight or lack of attention to details are the predominant causes for the troubles which arise in most types of pavements. Recognition of these troublesome developments should be followed by intelligent study and investigation as the cause and cure is generally revealed. Mr. Burgess and his associates have made extensive investigations of different types of bituminous concrete troubles and as a result, the causes and remedies of many typical cases are known.

Labor Disputes Presiding officer, G. A. Austin, of Consolidated Quarries Corporation, introduced the next speaker, John C. Gall, Attorney-at-Law, Washington, D. C., and formerly Counsel for the National Association of Manufacturers. In Mr. Gall's address on *Labor Disputes and Wage Stabilization*, he advised his listeners of disputes which have arisen in the crushed stone industry and what future developments might be expected. In discussing labor disputes and the problems of wage stabilization, Mr. Gall spoke of his observations as to how the laws governing these difficulties were being interpreted and applied in reaching a satisfactory solution for everyone involved.

New Officers At the annual election held on January 29, the following officers were elected for 1946:

President: G. A. Austin, Consolidated Quarries Corp., Decatur, Ga.

Regional Vice Presidents: Eastern—F. W. Schmidt, Jr., Morristown, N. J.; New England—T. C. Cooke, Swampscott, Mass.; Midwestern—Paul M. Nauman, Dubuque, Iowa; Southeastern—W. T. Ragland, Raleigh, N. C.; Central—V. C. Morgan, Louisville, Ky.; Northern—W. H. Wallace, Bay Port, Mich.; Western—A. J. Wilson, Watsonville, Calif.; Southwestern—E. Eikel, New Braunfels, Texas.

Executive Committee: G. A. Austin, Chairman Decatur, Ga.; F. O. Earnshaw, Youngstown, Ohio; Otho M. Graves, Easton, Pa.; Russell Rarey, Columbus, Ohio; F. W. Schmidt, Jr., Morristown, N. J.; Stirling Tomkins, New York, N. Y.; W. F. Wise, Dallas, Texas; A. L. Worthen, New Haven, Conn.; S. P. Moore—Representing the Agricultural Limestone Division, Cedar Rapids, Iowa; J. B. Terbell—Representing the Manufacturers' Division, New York, N. Y.

Treasurer: James Savage, Buffalo, N. Y.; Administrative Director and Secretary: J. R. Boyd; Engineering Director: A. T. Goldbeck; Field Engineer: J. E. Gray.

Howard M. Thomas, Fort Scott Hydralic Cement Co., Fort Scott, Kan., and C. E. Lovewell, Carney Co., Inc., Minneapolis.

Representing the N.C.S.A. on the Agricultural Limestone Division Board of Directors and Executive Committee: Otho M. Graves, Easton, Pa.

Scientific Developments Following the general luncheon on Tuesday, James Stokley, of the General Electric Research Laboratory, spoke on *Science*

Left to right: Bruce S. Campbell, Jr., Bruce S. Campbell, and Richard L. Campbell, the Harry T. Campbell Sons Corp., Towson, Md.

Remakes Our World. In his discussion, Mr. Stokley touched on such developments as the Berman metal locator, the steel wire recorder, and micro radio waves which are the basis of radar. He stressed the importance of scientific development in winning the war and what the war had done for the field of science. Billions of dollars were spent, not on fundamental work or research, but on products employing previously developed fundamentals for which the war provided applications.

In demonstrating the Berman metal locator, Mr. Stokley had a member of the audience insert a nail in one of three rolls from the luncheon. Then passing the probe of the metal locator over each roll he was able to determine by an audible buzzing sound which roll contained the nail. He further explained that Samuel Berman had first used the device as a medical instrument in locating metal in the human body. The x-ray machine is not as exact or convenient to use as the Berman device which was used extensively during the war in locating shrapnel in wounded soldiers.

Radio microwaves were demonstrated by the use of a low power transmitter which emitted a signal frequency of several hundred megacycles. The receiving apparatus consisted of a parabolic reflector and dipole antenna which picked up the signal transmitted from a similar device on the transmitter. The received signal was used to operate a door bell which served as an indica-

tion that a signal was being received. Reception was possible only when the two antennae were in direct line or when some object was used to deflect the transmitted signal directly in the receiving antenna. Mr. Stokley went on to explain that these directional properties of microwaves and an electronic timing mechanism were the fundamentals used in locating and measuring the range of enemy planes. The method was given the name radar.

The audience was then permitted to hear the voices of members as recorded on a steel wire by a wire recorder. The speaker explained that in the recording process the steel wire is magnetized with varying intensities which is controlled by the modulation of the voice. In the playback process, this magnetized wire is passed through a coil of wire in which a varying current is induced in the coil according to the laws of magnetism and induction. This induced current of varying intensity actuates a speaker in the same way that the voice actuates the diaphram of a telephone receiver. After serving a particular purpose, the steel wire can be de-magnetized and used over again.

In conclusion, Mr. Stokley voiced the opinion that a vast amount of research is needed in all fields of scientific development and that government aid will be necessary in financing this reasearch on the scale that it is needed.

Vibration Measurement Dr. L. Don Leet, associate professor of seismology at Harvard University, opened the Tuesday afternoon session presided over by H. E. Rainer (Federal Crushed Stone Corporation), with an interesting speech on *Observations at the Atomic Bomb Test,* which was illustrated with slides. He said that the seismograph record made of that test is the most nearly perfect record ever obtained in the history of seismology. The test revealed the existence of waves never before known and proved the existence of others that had been "suspected." He explained and illustrated some of these types of waves and microwaves set up in the ground around areas below hurricanes, typhoons, etc. He believes that the data obtained in the atomic-bomb test may have useful applications in the quarrying industry.

In discussing *A Factual Approach to Defense of Suits Alleging Damage from Blasting,* Harold Williams, Boston attorney, pointed out the two basic issues common to all blasting-damage suits—the questions: Are you legally liable?, and Did you do anything harmful to anyone or anything? With respect to the first

O. M. Stull, Liberty Limestone Corp., Buchanan, Va.

question, he said, one who is negligent in the use of explosives is legally liable in some jurisdictions, and that in others if one has not been negligent, he is not liable, even if damage has been done. This defense —the claim that every care and precaution was exercised—is becoming less useful practically.

With regard to the second question the speaker said that it is known by quarry operators that their blasts do not injure property of people as is alleged in suits for damages, but this fact must be proved. Complaints commonly exaggerate the severity of the quarry explosions and, consequently, the claims of damage are also exaggerated. However, judges and juries alike readily accept such claims as truthful.

Mr. Williams said that old investigations had dealt with two characteristics of quarry blasts: the amplitude of the vibration and its frequency; and had shown that the force released was too small to cause damage to buildings as had been claimed. The measure of the amplitude alone provided practically all the information needed to disprove the claims, because the differences between the results of these measurements (which showed the limited effect of blasts) and the claims made were very great. The modern method is to inspect the house before measuring the force of the blasting shot and then to re-examine the building after the shot has been fired, showing by this procedure that the force of the explosion was insufficient to cause any damage. Thousands of measurements have shown that an amplitude of several thousandths of an inch causes no damage whatever.

Reference was made by the speaker to thirteen cases of alleged damage due to blasting which were tried at the same time in Boston. The quarry involved is very small, he pointed out, and the shots never made use of as much as 300 pounds of dynamite and, frequently, of only half that amount. The nearest house was 400 feet away and the farthest 1,200 feet distant. In court Dr. Leet explained the basic priciples of his seismograph, showing why the results it gave were reliable. The jury understood and believed. The claimants could not be pinned down even on such simple facts as the dates on which the blasts were said to have occurred. The defense won the suits on the basis of Dr. Leet's demonstration that the damage alleged could not have been caused by quarry blasts.

Jules E. Jenkins (Vibration Measurement Engineers), who led the discussion which followed, said that in general the principles and data of seismology are usually called in too late and that quarry men now apply the knowledge and technique developed by thousands of tests made with seismographs.

A member of the audience asked why there are more complaints about blasting on cloudy days than on clear days, to which Dr. Leet replied by saying that the vibration from the blast is always the same, but meteorological conditions do affect the impressions created on people, heavy atmosphere reflecting the vibrations and emphasizing the pressure sensations.

Wage & Hour Developments *New Developments in Application of Wage-Hour and Walsh-Healey Acts to the Crushed Stone Industry* were discussed by L. Metcale Walling, administrator, Wage and Hour and Public Contracts Divisions, United States Department of Labor, at the Wednesday morning session presided over by Stirling Tomkins (New York Trap Rock Corporation). In speaking about his A-14 ruling of March, 1945, he explained that the administrator has no authority to issue regulations to protect those who have acted in good faith. Conformity with his opinions is not a defense against a suit for alleged violation

of the Fair Labor Standards Act (commonly known as the Wage-and-Hour Law.) Nonwillful violation of the act does not give the violator any advantage over the willful violator. The present system of having the courts make interpretations of his division's rulings produces a variety of judicial opinions in the various judicial districts. He had asked the Congress, the speaker said, for power to issue his interpretations in such a way that those who follow them would be protected until such interpretations were over-turned by court decisions.

He laid the justification for his March, 1945, ruling on the decisions of courts which had held that employees engaged in the production of ice for cooling food in transit are engaged in the production of goods for commerce within the meaning of the act. The law says, he added, that "produced" means mined, manufactured or worked on when applied to the term "producer." It says also that "goods" means ships, cars, in fact, goods of any kind. These definitions in the act and in court decisions made it necessary that the Administrator notify business men of the changed status of their workers and had the effect of reversing his earlier rulings. He pointed out that his March ruling did not apply retroactively and that it would not apply beyond April 15, 1945, but that it could not alter the right of employees to sue their employers for back pay as provided by the act. He added that his division has suggested that the Administrator be given the authority to file suits on behalf of employees for the purpose of standardizing the application of the law throughout the country.

Mr. Walling pointed out that the United States Supreme Court has held that an employee can not waive his right to double pay under the law. In one suit the plaintiff was awarded 100 per cent. of the claimant's plea for back pay. He brought suit again for an additional 100 per cent. to bring his total recovery up to the double rate provided by the law, and the court granted the request.

With respect to the time within which suits for back pay can be filed Mr. Walling said that he hopes some favorable action will be taken by the present Congress on either the Gwynne bill or the Pepper amendments to provide a statute of limitations applicable to such actions. The Gwynne bill had been reported out by the committee studying it, but is now back for changes.

The speaker said that he believes that the government has no right to determine wages except with respect to minimum subsistence standards. The determination of other wages

W. M. Palmer, Dolomite Products, Inc., Ocala, Fla.

should remain the function of management and labor through bargaining.

The private enterprise system, the speaker said, is on the defensive in most parts of the world. We in America still have the opportunity to demonstrate our ability to make it work, but we must prove it, he said. In the private-enterprise system with the minimum amount of control by government to insure individual freedom—"not freedom to starve, but the freedom to participate in the fruits of American ingenuity"—this country has something definite to offer the rest of the world by showing that freedom can be maintained.

Sales Psychology The next speaker was Judd C. Benson, manager of the home office agency of the Union Central Life Insurance Company, Cincinnati, Ohio, who spoke on *Human Sales Psychology*. A good salesman, Mr. Benson said, must possess certain natural attributes, such as friendliness, honest desire to be helpful, ability to think straight and the resourcefulness to do the right thing at the right time. In order to be successful a salesman must want to sell, and must have the knowledge that he has done a good job even when he fails to obtain an order.

Mr. Benson pointed out that the fundamental principles of good selling are identical in the insurance business and in the crushed stone industry. Prospecting in advance, he said, is an absolute essential in making sales contacts—getting information about the buyer's business, his problems, hobbies and buying habits. Such knowledge displayed by the salesman compliments the customer and simplifies the job of selling. Good credentials also simplify the salesman's task, and may best be provided by sending a letter in advance telling the customer something about abilities, experience and background of the individual who will call on him.

A good sales presentation, the speaker said, anticipates the prospect's objections before he raises them. If this is not done, no matter how well the objections are answered, the prospect will usually persist in trying to justify himself. Skill in interviewing is one of the best tools a salesman can possess, and it can be obtained only by frequent practice and much self-criticism.

In discussing the actual closing of a sale, Mr. Benson stressed the fact that people have a distinct aversion to making big, important decisions, and that it is much better, therefore, to offer them minor ones. For example, a crushed stone salesman, instead of asking a prospect bluntly to sign on the dotted line, might ask him instead on which of two available railroad lines he would prefer to have the stone shipped. Another important point brought out was the importance of offering the customer a choice of two propositions.

Labor Controversies The *Responsibilities and Rights of Employers in Labor Controversies* was the subject of an address by the Honorable Wayne Lyman Morse, United States Senator from Oregon. Pacific Coast Arbitrator from 1938 to 1942, and public representative from the west on the War Labor Board, Senator Morse has a wide reputation for the skill and impartiality of his handling of labor disputes.

Senator Morse presented a telling argument for the perpetuation of economic democracy. American business, he said, must begin *practicing* collective bargaining instead of merely talking about it, or eventually the private enterprise system will cease to exist as a result of straitjacket legislation. Business must stop turning to government for the solution of its serious problems.

In the speaker's opinion it is not in the best interests of the private enterprise system to settle labor dis-

putes by compulsory arbitration, and now that the war emergency has passed he favors dropping the system and restoring freedom of action to both employers and employees. We cannot, he said, have compulsory arbitration with final control in the hands of the government unless the government assumes responsibility for wages, hours and conditions of employment. Except for the establishment of minimum standards, Senator Morse thinks such matters are better left in the hands of labor and management.

The speaker pointed out that the interests of labor cannot be advanced by any program of economic waste, since the standard of living, which is the only true yardstick of progress, is wholly dependent upon technology and productive efficiency. The present strikes, the Senator said, are on both sides of the conference table, with industry plainly calling for a knock-down and drag-out fight. The result is in effect a general strike on the part of both labor and industry—a condition which no government can countenance for long. The private enterprise system, according to Senator Morse, cannot possibly survive a fight to the finish between labor and industry.

In the course of the discussion which followed Senator Morse's formal address, he recommended the institution of a judicial arbitration process as opposed to the horse trading and mediation procedures now being attempted. And even this, he added, should be used sparingly and on a purely voluntary basis.

Sales Problems The Wednesday afternoon session for salesmen was presided over by Harry Brandon, sales manager of the Melvin Stone Company, Melvin, Ohio. A short paper on *Road Bed Preparation and the Merits of Stone Ballast* was read by J. E. Ott, Wallace Stone Company, Bay Port, Michigan. Among the interesting points brought out by Mr. Ott was that although crushed stone ballast costs approximately $107 more per mile than gravel, from 13 to 15 more cars of gravel are required per mile than of crushed stone. The present shortage of cars makes this an important factor in the selection of ballast material. The 13 to 15 additional carloads needed when gravel ballast is used require 1½ hours without interference from train movements in order to unload them.

The next speaker was Murray D. Shaffer, engineer-director of Macadam Pavements, Inc., Columbus, Ohio, an association formed in June, 1945, to coordinate the efforts of the various industries interested in promoting the use of macadam pavements.

Mr. Murray told about the formation of two committees—technical and machinery—and described the association's long-term program for bringing about a revival of the use of macadam pavement design. With the huge highway program now developing, the present is an opportune time for such a revival, Mr. Murray said, and he urged crushed-stone producers to cooperate in the association's activities.

Pointing out that there are many macadam-type pavements in Ohio which have been under heavy traffic for as long as 20 years, the speaker expressed optimism concerning the future of macadam. Among its advantages, he said, are high salvage value and the ease with which adjustments may be made to meet changing conditions.

The remainder of the session was devoted to an informal discussion of miscellaneous sales problems.

Operating Problems The Wednesday afternoon meeting of operating men and equipment manufacturers was the most successful one of its kind held by the association, with open discussions of operating problems participated in freely by those with problems to solve and those with answers for them. These discussions were ably guided by T. C. Cooke, Lynn Sand & Stone Co., Swampscott, Mass., and Nelson Severinghaus, Consolidated Quarries Corp., Decatur, Ga., who presided jointly.

The drop ball or "skull cracker," which was one of the hottest subjects of discussion at the previous year's meeting, has become even more important with the growing shortage of drillers and was given first place on the agenda. Many producers and machinery men told of their own or others' experiences with this equipment, which apparently is being used in many shapes and sizes. Most of the speakers agreed that the drop ball, if properly used, can approximate the efficiency and economy of secondary blasting, but others reported poor results and said that only the shortage of drillers justified its use. Undoubtedly the type and physical characteristics of the deposit have much to do with results and the skill of an operator is vital because of the ease with which crane booms can be damaged in such work. All agreed that it was best not to use this equipment for bringing down hanging rock and that a proper screen must be provided to protect the crane operator from flying rock splinters.

Most operators prefer a round ball weighing about 5,000 pounds and dropped from a height of about 45 feet. A pear-shaped ball has a tendency to roll, but at least one operator has used it successfully. Another obtained good results with a 6,000-pound crusher shaft dropped from a crane with a 40-foot boom but is replacing this with a 60-foot crane for even better results. Another producer with a deposit of fairly soft limestone uses a 7,000-pound billet with a drawn-out end a maximum drop of 50 feet. For most stone, he said, a drop of 10 to 12 feet was sufficient. An Owens grab was recently purchased and this will be used experimentally with a live ball.

The most economical grade for a quarry truck ramp was the next subject. L. F. Miller, New York Trap Rock Corp., described a chart he had made up which showed that a 5 to 8 per cent. grade was the most satisfactory for the type of haulage equipment he had in mind.

The most economical height of face proved to be a more controversial subject but most of the operators agreed that about 20 feet for wagon drills and from 50 to 100 feet for well drills was best. Two Virginia operators with 290- to 425-foot quarry faces said that they preferred bench drilling with jackhammers but that the shortage of drillers had forced them to go to well drills. One, with a brittle, crystalline limestone, obtained good breakage due largely to the impact of the falling stone. The other, with a non-crystalline stone, did not get as good breakage. It was also stated that all large operators having a choice prefer a face of medium height, less than 100 feet. Cited as an example was the huge quarry of the Utah Copper Co., at Bingham Canyon, Utah, where many 50-foot faces are worked simultaneously.

The advantages of 9-inch drill holes for many quarries were explained by L. B. Birckhead, Bucyrus-Erie Co., who said that in many cases better breakage and lower costs result. The 9-inch hole, he said, will hold 120 per cent. more explosive than the 6-inch, making it possible to concentrate more of it near the bottom of the hole. Drilling can be done just as rapidly, so the labor cost is lower; there is less chance of stuck tools, the fishing job is easier, and there are less holes to load. He also said that most of the larger

(*Continued on Page* 91)

Agstone Division of N. C. S. A. Holds First Annual Convention— Selects Officers, Directors for 1946

another ON THE SPOT report

THE first annual convention of the Agricultural Limestone Division of the National Crushed Stone Association was held at the Gibson Hotel, Cincinnati, from January 31 to February 1, immediately following the close of the crushed stone meeting in the same city. The off-shoot of the present association was organized at a meeting in Cincinnati early last year of some 25 persons representative of the agricultural limestone industry. Although the new group is self governing to the fullest extent, it will benefit from the many years of experience of the parent association in coping with similar problems. Henry A. Huschke serves the new division in the capacity of managing director, and J. R. Boyd of the National Crushed Stone Association is secretary-treasurer, S. P. Moore, Concrete Materials & Construction Company, Cedar Rapids, Iowa, was elected chairman for this year.

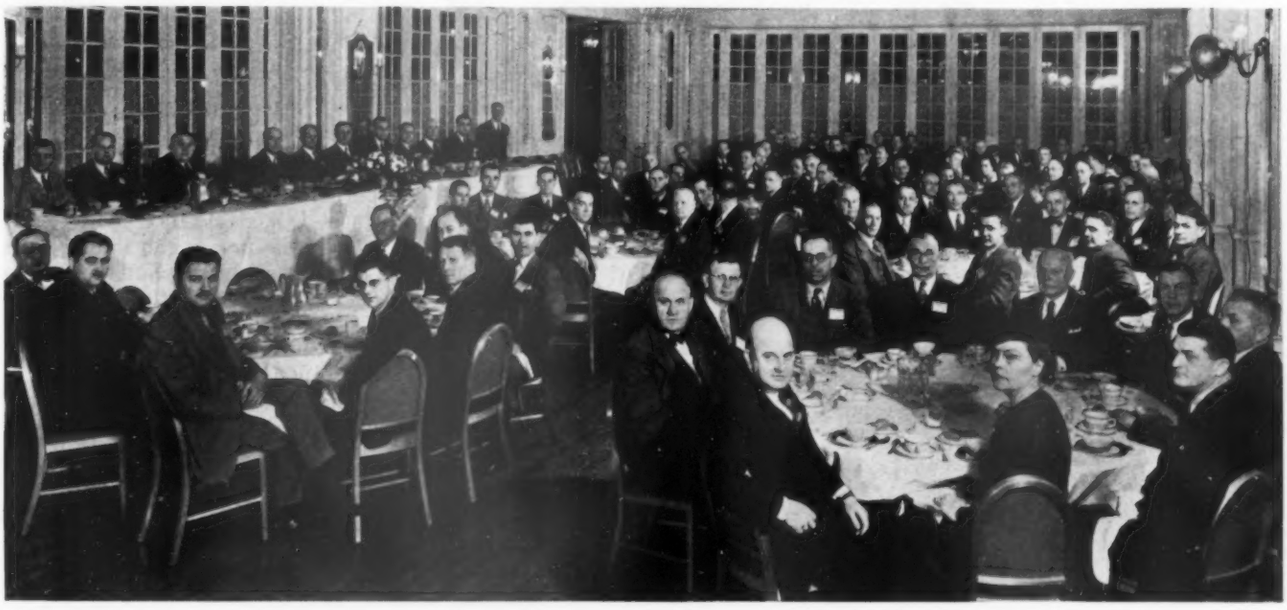
Board Meetings The outgoing board of directors of the Agricultural Limestone Division held its last meeting on January 31 with chairman Howard M. Thomas presiding. Managing Director Henry A. Huschke and Secretary J. R. Boyd presented their reports covering the first year's activities of the Division.

In his report Mr. Huschke referred to the work done by the Federal Reserve Banks in promoting the idea of local banks making loans to farmers to speed and increase the use of agricultural limestone. The Federal Reserve Banks of Cleveland and St. Louis have been the most active in furthering the participation of local banks in this kind of money lending. Mr. Huschke told of seven meetings of state groups of agricultural limestone producers from as many states which he had attended. He said also that the Division's contemplated promotional campaign had been started and that producers had shown their appreciation of the importance of advertising material by ordering large numbers of the two promotional pieces that had already been issued. Comments made by several members of the board made it evident that they were fully aware of the necessity of "selling" the agstone idea to the farmer, so that when the A.A.A. ends its support and promotion activities, sales will not fall off sharply.

Secretary J. R. Boyd, in presenting his report, which dealt largely with financial matters, spoke about the potentialities for increased membership and mentioned the fact that the Division now has 143 active members and 24 associate members.

The new board held its first meeting after the adjournment of the final session of the convention with its newly-elected chairman, S. P. Moore, presiding. It gave consideration to the time and place for holding its midyear board-of-directors meeting and the next annual convention and decided to meet when and where the National Crushed Stone Association will meet.

Greeting Luncheon The meeting opened with a luncheon Thursday noon at which P. E. Heim, Carbon Limestone Co, Youngstown, O., presided. He introduced G. A. Austin, president of the National Crushed Stone Ass'n., Howard M. Thomas, chairman of the division, and others. After the luncheon those in attendance listened with growing appreciation to Tom Kelly, Soil Conservation Service, Milwaukee, who combined a real talent as a "chalk talker" with very vital information on the growing need for all forms of soil conservation. As he went along Mr. Kelly drew a series of colored chalk drawings to illus-



Delegates at the greeting luncheon of the Agricultural Limestone Division of the National Crushed Stone Association.

trate the points he was trying to emphasize.

According to Mr. Kelly we are now robbing the soil 60 times faster than we are replenishing it and are the greatest destroyers of natural resources the world has ever known. This includes the soil and its fertility and if this destruction continues for another 100 years famine conditions will prevail. He said that one-third of our top soil is already gone, 100,000,000 acres of land is already ruined and much of the remaining 450,000,000 acres of crop area is approaching that stage. He blamed the old methods of straight-line farming for most of the erosion, the floods, and the fact that water tables everywhere are lowering rapidly.

In one of his illustrations Mr. Kelly showed how erosion first fills up a stream bed, then dikes are built up, then the bed fills again, etc. The Yellow River in China has been built up through the centuries until its bed is now as much as 100 feet above the level of the surrounding country. He described the first CCC job near La Crosse, Wisc., which was the beginning of the trend toward contour plowing and strip farming to prevent erosion and retain moisture. Now, said Mr. Kelly, 45 states have passed laws permitting the formation of conservation districts and technicians are assigned to each district by The Federal Soil Conservation Service.

There are no straight lines in nature, said Mr. Kelly, and a straight line is the shortest way to soil destruction. Now fields are shaped to fit the contours of the land and the agricultural revolution which is getting under way is one of the most important developments in all history. This revolution is proceeding much more rapidly than did the planting of alfalfa to build up depleted soils which took 40 years to become generally adopted. He finished up with the statements that people no longer say "The land is mine so I will mine it to death," and that if they "love thy rocks and rills, thy woods and templed hills" then we will never join the ranks of the vanished nations.

Ellwood Gilbert, New Castle Lime & Stone Co., New Castle, Pa., Northeast Regional Chairman.

Tom Kelly, U. S. Soil Conservation Service, links soil conservation with patriotism.

The opening session of the Agricultural Limestone Division was held on the afternoon of Thursday, January 31. Chairman Howard M. Thomas, Fort Scott Hydraulic Cement Co., Fort Scott, Kans., presided, and spoke briefly of the rapid growth of the division in less than a year of existence. He stressed the importance of getting as many members as possible in order to adequately represent the industry and asked every member to help get additional ones.

Reports Managing Director Henry A. Huschke then reviewed some of the highlights of the brief life of the Division and previewed some of the important features of the program to follow. Some of the work already done included studies of state lime laws and the distribution of reports on them to members; the distribution of promotional literature through the producers, etc., but, he said, the surface has just been scratched.

According to Mr. Huschke there is a market for at least twice as much agstone as producers have the capacity for but it is necessary to keep the farmer sold on its use in case the government withdraws its support of agstone purchases. Some banks in Cleveland and St. Louis, he said, have already begun to make bank loans to farmers for such purchases. He urged that all producers help to promote the sale of agstone.

Secretary J. R. Boyd then made a brief report on the finances of the division and the plans for this year. The division, he said, already has 140 members and 24 associate members.

Farm Programs Norris E. Dodd, of the U. S. D. A., who was to have discussed "The Relation of Farm Programs to Business" was unable to attend. In his place Guy W. Smith, an Iowa farmer who is director of the North Central Region, comprising 10 states, of the U. S. D. A., told first of his early experience with agstone. Local farmers looked askance many years ago when he first began liming plots of alfalfa and clover but the results he obtained soon induced them to begin liming.

Mr. Smith said that the A.A.A., the Division, and the farmers are all working to the same end, namely the conservation of the soil. The government, he said, has long felt the need of a producer's organization and will take full advantage of it. He then commented on the purchase order plan which is now in operation in several states. Under this plan

the farmer buys the agstone direct, pays his share of it, and the producer bills the government for the balance. According to Mr. Smith this puts the responsibility for the source, price and delivery of the agstone on the farmer and it is hoped that eventually there will need to be no government intervention between the seller and the buyer. Where there is good assurance that contracts or purchase orders are not necessary for the continued use of agstone these will be foregone.

The agstone industry, said Mr. Smith, is charged with the responsi-

Alvin R. Armvurst and Dale C. Williams of the Ohio A.A.A. committee.

bility of developing a sound program to take care of the country's needs as starved land cannot maintain a prosperous people. He said that erosion is one of the worst enemies of the land but that gully erosion is far more noticeable but far less important than sheet erosion which skims mineral elements from the soil. He described some of the vast damage already done by sheet erosion and some of the measures being taken to combat it. He stressed the importance of agstone in this program and urged that every producer sell all his employees on its importance as each of them in turn also becomes a salesman.

Mr. Smith said that the Field Service Branch has discarded the old method of basing farm allowances on the acreage of crop land and now bases them on individual needs. All tried and proved methods and practices will be continued and efforts will be concentrated on farms in need, he said, and there is considerable sentiment among committeemen and agents that each farm should be considered as a separate problem. No other practices are of any value unless the soil is fertile, said Mr. Smith, and the program will absorb all the agstone that producers can turn out. Those producers in need of equipment will be given the necessary priorities and he asked that producers make only committments they are sure they can fill. The industry, he said, overcame all war obstacles and should be able to overcome any the future may hold.

The ensuing discussion was led by Howard Doerr, Administrative Officer, Conservation Materials Section, North Central Division, Field Service Branch, Production and Marketing Administration, U. S. D. A., who introduced several state officers. This discussion brought out the fact that a profit for the producer is necessary to keep the program going. The purchase order plan, it developed, is already widely used in Kentucky and Tennessee and to a lesser extent in other states. This plan is recommended only where there is a local source of agstone as it encourages greater production, but the contract system is preferred where the agstone must be shipped into an area. Charts were handed out which show the amount of production in various states.

It was explained that purchase orders are not issued until just before the farmer wants the agstone delivered and the acceptance of all the agstone specified by the order is necessary before the farmer can collect his payments. When a farmer wants some of the agstone in the spring and in the fall separate orders are made out and these are good for only 60 days. In some areas 30 or 60-day periods are in force and this is up to the county committees to decide. Mr. Doerr suggested that agstone be delivered to the farmers as they are ready for it and that the liming of lands which can be limed at any time be reserved for otherwise slack periods.

Assisting Mr. Doerr in this discussion were: Roland Crumpler, assistant to the director, Field Service Branch; Thomas Brand, administrative officer, East Central Region; Norbert Swartz, program specialist

AAA LIMING MATERIALS (In short tons)

State and Region	Total Used 1944	AAA Purchase 1944	Total Used 1945[1]	AAA Purchase 1945[1]	AAA Purchase 1946[1]	Annual Requirements	Method of Purchase 1946
Maine	98,000	90,000	95,000	79,000	92,000	283,000	Contract
New Hampshire	37,000	35,000	34,000	32,000	39,000	130,000	Contract
Vermont	125,000	118,000	110,000	102,000	74,000	434,000	Contract
Massachusetts	73,000	66,000	78,000	69,000	80,000	260,000	Contract
Rhode Island	10,000	8,000	10,000	9,000	8,000	34,000	Contract
Connecticut	72,000	62,000	62,000	52,000	59,000	215,000	Contract
New York	787,000	674,000	825,000	750,000	728,000	2,689,000	Contract
New Jersey	234,000	117,000	240,000	101,000	100,000	312,000	Contract
Pennsylvania	1,190,000	957,000	1,250,000	840,000	857,000	2,265,000	Contract
NORTH EAST REGION TOTAL	2,626,000	2,127,000	2,704,000	2,034,000	2,037,000	6,622,000	
Delaware	60,612	21,690	36,000	10,500	25,000	73,215	Cont. & P.O.
Maryland	335,605	142,530	300,000	60,000	70,000	363,824	Cont. & P.O.
Virginia	812,300	681,108	775,000	455,000	600,000	2,157,312	Contract
West Virginia	520,314	467,038	400,000	300,000	400,000	1,513,750	Contract
North Carolina	500,316	437,122	373,650	275,000	400,000	1,766,802	Contract
Kentucky	976,246	628,137	675,000	375,000	450,000	1,561,813	Cont. & P.O.
Tennessee	1,347,803	507,038	1,405,000	275,000	800,000	1,878,912	Cont. & P.O.
EAST CENTRAL REGION TOTAL	4,553,098	2,884,663	3,964,650	1,750,600	2,745,000	9,305,628	
Illinois	4,048,324	841,757	3,600,000	650,000	600,000	4,975,141	Cont. & P.O.
Indiana	1,785,772	907,234	1,725,000	829,342	800,000	2,349,286	Contract
Iowa	2,099,267	663,752	2,400,000	750,924	750,000	5,717,749	Contract
Michigan	834,785	331,855	580,000	510,576	600,000	1,083,626	Cont. & P.O.
Minnesota	341,397	290,618	280,000	223,117	250,000	871,542	Contract
Missouri	1,607,341	1,094,646	1,200,000	845,503	1,000,000	4,248,300	Contract
Ohio	1,567,371	799,559	1,400,000	445,476	600,000	3,398,866	P. O.
Wisconsin	2,246,857	1,314,284	2,200,000	1,240,040	1,000,000	2,495,475	Contract
NORTH CENTRAL REGION TOTAL	14,521,123	6,414,274	13,385,000	5,494,978	5,600,000	25,139,985	
Alabama	243,168	212,923	64,300	59,300	70,000	1,299,600	P. O.
Arkansas	85,669	69,738	86,600	75,700	80,000	433,200	P. O.
Florida	60,654	5,020	67,100	5,700	10,000	142,800	P. O.
Georgia	112,764	83,911	68,500	51,000	60,000	1,320,300	P. O.
Louisiana	291,648	258,493	37,800	33,500	100,000	930,400	P. O.
Mississippi	765,332	706,700	359,900	339,100	350,000	1,427,500	P. O.
Oklahoma	387,548	351,614	247,800	226,300	250,000	1,208,600	P. O.
South Carolina	449,715	355,418	190,200	171,800	150,000	1,645,300	P. O.
Texas	10,641	10,287	61,400	59,300	100,000	2,334,700	P. O.
SOUTHERN REGION TOTAL	2,407,029	2,054,004	1,183,500	1,021,700	1,170,000	10,742,400	
California	5,742					116,929	None
Kansas	627,671	460,140	800,000	543,576	750,000	1,111,000	Contract
Oregon	30,351	18,941	3,5000	15,139	30,000	180,220	Contract
Washington	13,645	1,819	18,000	9,654	10,000	60,638	P. O.
WESTERN REGION TOTAL	577,389	480,900	853,000	568,369	790,000	1,468,787	

[1] Estimated.

for Illinois; Dale Williams, member, Ohio A.A.A. Committee.

Mineral Nutrition At the Friday morning session Dr. H. R. Bird Bureau of Animal Industry, Beltsville, Md., opened the proceedings with a talk on *The Mineral Nutrition of Poultry and Farm Animals.* Confining his remarks to the problem of poultry feed to which limestone is added, Dr. Bird stated that a laying hen will draw calcium from its skeleton to the extent of 10 o 25 per cent. of the skeleton's weight if the supply of calcium furnished by the digestive system is inadequate. If proper poultry feed were used throughout the country, 320,000 tons of agricultural limestone and oyster shell would be consumed annually to provide the necessary calcium. Slides were presented to show the relationship between certain minerals and the bone structure of the chickens.

Liming Loans The next speaker was J. B. Anderson, manager of the bank and public relations department of the Federal Reserve Bank of Cleveland. His subject was *A Campaign for Long-Term Liming Material Loans to Farmers.* Mr. Anderson pointed out that bankers can play an important part in the soil conservation program by insisting that borrowers comply with the recommended practices.

Asserting that prosperous farms are essential to the prosperity of country banks, the speaker urged that more loans be granted to farmers for the purpose of purchasing stock and for liming programs and soil conservation in general. The banks, he said, are at least in part responsible for the fact that the amount of lime placed on Ohio soils in recent years has scarcely replaced the amount withdrawn by crops.

Mr. Anderson believes that banks should adopt the practice of making loans for as much as 5 years to encourage farmers to lime their soil. He also recommends that some provision be made to enable farm tenants to endorse lime notes, paying only for the portion from which they benefit.

Why Farmers Must Lime was the subject of an address by Professor Emil Truog of the University of Wisconsin. The abandonment of the soil liming program, Professor Truog said, would reduce crop yields in this country by about 50 per cent. in 50 years. He stated that 40,000,000 tons of agstone should be applied to the soil annually for the next ten years, comparing this figure with the 25,000,000 tons used in 1944.

According to the speaker the cost of liming over a 10-year period in Wisconsin varies between 25 to 50 cents per acre per year, with crops consuming approximately 200 pounds per acre per year. Since in the latitude of Wisconsin there is practically no leaching of minerals from well cropped fields, the lime requirements are considerably less than in the south where leaching is an important factor.

The Story We Must Tell was the title of a presentation made at the final session on Friday afternoon by Managing Director Henry A. Huschke. It consisted largely of visual material, pictures taken by the speaker in the course of his travels over the country and suggesting the type of illustrative material needed by the agricultural limestone industry in bringing its message to American farmers. A number of his pictures were of the "with-and-without" type, showing what the use of agricultural limestone accomplished in increasing crop yields and improving plant growth and stamina as contrasted with plants grown on land that had not been treated with agstone.

Dermot Shemwell, Jr., Armena Lime Co., Albany, Ga.

In the Round Table Discussion which followed, its leader, W. H. Margraf, Marble Cliff Quarries Company, displayed posters and other types of promotional material used by the Processed Limestone Association and others in furthering the use of agricultural limestone.

One of the members emphasized the necessity of making a promotional program continuous over a period of years, as the farmer, in his opinion, can not be convinced overnight of the value of agricultural limestone. He revealed that in the case of his company nearly all the sales made in 1943 came in the month of December.

Another producer reported that his company's sales of agricultural limestone in 1944 were 700 per cent. greater than those made in 1943, and he attributed the increase largely to his company's practice of contacting the farmers by attending their meetings.

In Ohio, according to another member, producers have worked through the Farmers' Institute and provided speakers for some seven or eight meetings, the speakers making use of information provided by state agronomists and discussing the value of agricultural limestone rather than specifications.

At the business meeting which followed, the Nominating Committee's recommendations for officers to serve during the second year of the Division's existence were adopted.

Several proposed resolutions were adopted, among them one expressing the appreciation of the Division to the National Crushed Stone Association for having implemented the Agricultural Limestone Division by providing its initial capital of $5,000. Another expressed the members' belife in promotional work directed toward soil conservation, and another voiced the Division's gratitude to the Agricultural Adjustment Agency (A.A.A.) for its work in extending the use of agricultural limestone.

New Officers In the first complete elections of the newly formed division the following officers and directors were designated for 1946:

Chairman: S. P. Moore, Concrete Materials & Construction Co., Cedar Rapids, Iowa.

Regional Vice Chairmen: Northeast Region—Elwood Gilbert, New Castle Lime & Stone Co., New Castle Pa.; East Central Region—O. M. Stull, Liberty Limestone Corp., Buchanan, Va.; North Central Region—E. J. Krause, Columbia Quarry Co., St. Louis, Mo.; Southern Region—W. M. Palmer, Dolomite Products, Inc., Ocala, Florida; Western Region—Howard H. Thomas, Fort Scott Hydraulic Cement Co., Fort Scott, Kans.

Directors, Northeast Region: Harry E. Battin, Jr., Callanan Road Improvement Co., South Bethlehem, N. Y.; Paul I. Detwiler, New Enterprise Stone & Lime Co., New Enterprise, Pa.; H. E. Rainer, Federal Crushed Stone Corp., Buffalo, N. Y.

Directors, East Central Region:

Earl L. Dingle, Harry T. Campbell Son's Corp., Towson, Md.; S. B. Downing, Jr., Central Rock Co.,

Verne Schield, Schield Soft Lime Quarry, Waverly, Ia., and C. L. Rosselot, Even-Spread Spreader Co., Owensville, O.

Lexington, Ky.; R. P. Immel, American Limestone Co., Knoxville, Tenn.; A. W. McThenia, Acme Limestone Co., Fort Spring, W. Va.; W. T. Ragland, Superior Stone Co., Raleigh, N. C.; A. B. Rodes, Franklin Limestone Co., Nashville, Tenn.

Directors, North Central Region: G. B. Clark, Midwest Limestone Co., Gilmore City, Iowa; H. A. Clark, Consumers Co., Chicago, Ill.; Wm. D. Dillon, Dillon, Sharpe & Co., Centerville, Iowa; James Eells, Basic Dolomite, Inc., Cleveland, Ohio; E. E. Haapala, Zumbrota, Minn.; A. E. Hanshaw, Lehigh Stone Co., Kankakee, Ill.; A. K. Hausmann, Kelley Island Lime & Transport Co., Cleveland, Ohio; L. W. Hayes, Kansas City, Mo.; P. E. Heim, Carbon Limestone Co., Youngstown, Ohio; W. E. Hewitt, East St. Louis Stone Co., East St. Louis, Ill.; Ed. J. Leary, Ed. J. Leary Construction Co., River Falls, Wis.; S. J. Marks, Material Service Corporation, Chicago, Ill.; F. W. Mumma, Columbia Quarry Co., St. Louis, Mo.; Paul M. Nauman, Dubuque Stone Products Co., Dubuque, Iowa; Norbert Neuheisel, Neuheisel Lime Works, Eau Claire, Wis.; R. M. Seifried, National Lime & Stone Co., Findlay, Ohio.

Directors, Southern Region: E. V. Scott, Southwest Stone Co., Dallas, Texas; C. M. Sims, Campbell Limestone Co., Gaffney, S. C.; R. T. Willingham, Willingham-Little Stone Co., Atlanta, Ga.

Director, Western Region: John J. Stark, Girard, Kansas.

Representing the N.C.S.A. on the Agricultural Limestone Division Board of Directors: Otho M. Graves, General Crushed Stone Co., Easton, Pa.

Executive Committee: Chairman—S. P. Moore; Northeast Region—Paul I. Detwiler; East Central Region—A. W. McThenia; North Central Region—E. E. Haapala, P. E. Heim and E. J. Krause; Southern Region—R. T. Willingham; Western Region—H. M. Thomas; Representing N.C.S.A.—Otho M. Graves.

Agricultural Limestone Division representatives on N.C.S.A. Board of Directors: S. P. Moore, James Eells and E. E. Haapala.

N.C.S.A. (*From page* 86)

producers were adopting the larger-size drill and that most operators who analyze their blasting and loading costs could also benefit by a study of their drilling costs. One producer, operating in a massive deposit of granite with a 150-foot face, said that in most deposits the 9-inch drill probably had its advantages but that in his quarry it was necessary to increase the burden with the result that the loading cost was increased considerably. Mr. Birckhead said that over 400 of the 9-inch drills are now in use.

In response to questions Jule E. Jenkins, Vibration Measurement Engineers, Chicago, said that the larger holes, in a silica rock deposit, increased the ground wave somewhat, but decreased the more damaging atmospheric wave.

The one-hole shot, according to Milo A. Nice, Hercules Powder Co., is not ordinarily used unless conditions make it necessary, and is a nuisance to shoot. It should not ordinarily cause toe trouble but the type of stone is a governing factor.

Alexander Foster, Jr., Warner Co., said that 9-inch holes with spacing ranging from 25- by 40-feet to 18- by 16-feet are being used in several quarries with success under the different conditions. He warned, however, that any changes to larger holes should be made gradually and only after careful study.

The ensuing discussion also brought out the fact that most producers prefer electric shovels in the larger sizes and that diesel trucks are the most economical.

The question of the smallest size of stone which could be washed over a vibrating screen brought forth answers ranging from 4½-mesh down to 28-mesh, the latter being obtained by a newly-developed process. The use of non-choking or curved jaw plates, it was agreed, increases the output of a primary crusher but decreases the maximum size of stone the crusher will take, and the jaw can not be reversed when worn. Suggestions for protecting a wooden plant from fire loss included cutting off all power at included cutting off all power at quitting time, keeping water wherever welding is being done, and having a fire extinguisher at every switch.

Annual Banquet In keeping with long-established custom the climax of the 29th annual convention was reached at the reception and banquet on Wednesday evening, January 30. One of the highlights of the annual banquet is the presentation of the National Crushed Stone Association Safety Awards. On this occasion Daniel Harrington, chief of the health and safety branch of the U. S. Bureau of Mines, made the presentations.

In his introductory remarks Mr. Harrington noted that the crushed stone industry had an accident frequency rate of 60 back in 1925, just before the establishment of the safety competition. Steady and encouraging progress has been made since that time, and the rate has dropped to approximately 31.

Winner of the 1945 safety competition was the Marquette limestone quarry of the Marquette Cement Manufacturing Company at Cape Girardeau, Missouri. This quarry worked 84,374 man hours during 1945 without one lost-time accident.

Principal speaker of the evening was Colonel Harold G. Hoffman, former governor of New Jersey, who more than lived up to his wide repute as an entertaining raconteur. Once or twice Colonel Hoffman skidded perilously close to the announced topic of his address—*Government in Business and Business in Government*—but by and large he avoided the subject completely in the course of a most amusing talk.

N.L.A. Specifications Appear in New Booklet

The National Lime Association has issued an 8-page booklet entitled *National Lime Association Specifications for Lime and Its Uses in Plastering, Stucco, Unit Masonry and Concrete.* The subject is divided into eight sections: finishing hydrated lime; masons hydrated lime; quicklime (lump, pebble, crushed, granular and ground); quicklime, pulverized; lime plaster and lime stucco; mortars for use in unit masonry; lime in concrete; methods of test.

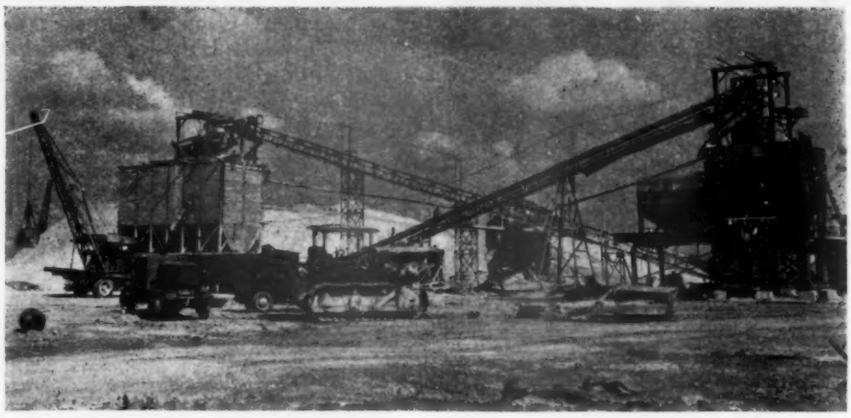
The specifications were developed from results of research conducted by the National Bureau of Standards, technical and educational institutions and by the N.L.A. and its member companies.

Seminole Uses Portable Crushing Plant While Permanent Plant Is Being Moved

another ON THE SPOT report

WHEN the government began construction of an airport on Blue Lagoon, just off the Tamiami Canal near Miami, Florida, Seminole Rock Products Company was confronted with the serious problem of moving its entire plant to the opposite side of the lagoon to make way for the development. Because of the critical need for materials not only for the airport project but for other important war construction then in progress, it was deemed inadvisable to cease all production while the plant was being dismantled, moved and reassembled.

To get around this obstacle the company designed and built a unique portable crushing plant to maintain production while the fixed plant was being shifted. The units were erected on two standard railway flat cars measuring 9½ feet wide by 42½ feet overall length. Welded-steel supporting members were used throughout. A dragline loads material into a 3- by 8-foot Universal feeder which feeds to a 4- by 1-foot triple-deck Simplicity vibrating screen, fitted with 2-inch, ¾-inch and 3/16-inch mesh cloth. Material passing 3/16-inch mesh drops into a 4- by 27-foot Link-Belt sand drag for recovery, while the intermediate size drops onto a 24-inch by 40-foot belt conveyor and is discharged into a truck loading bin adjacent to the plant. Plus 2-inch oversize is rejected, while minus 2-inch is reduced in a 30- by 48-inch McLanahan & Stone single-roll crusher and a 30-inch Universal two-roll crusher arranged in series and in closed circuit with the Simplicity screens. A 30-inch by 50-foot belt conveyor connects the two crushers, with the feed back to the screen passing over a 24-inch by 61-foot belt. There is an 8-inch break in the conveyor frames between the cars so that the two halves of the plant may be moved separately if necessary.

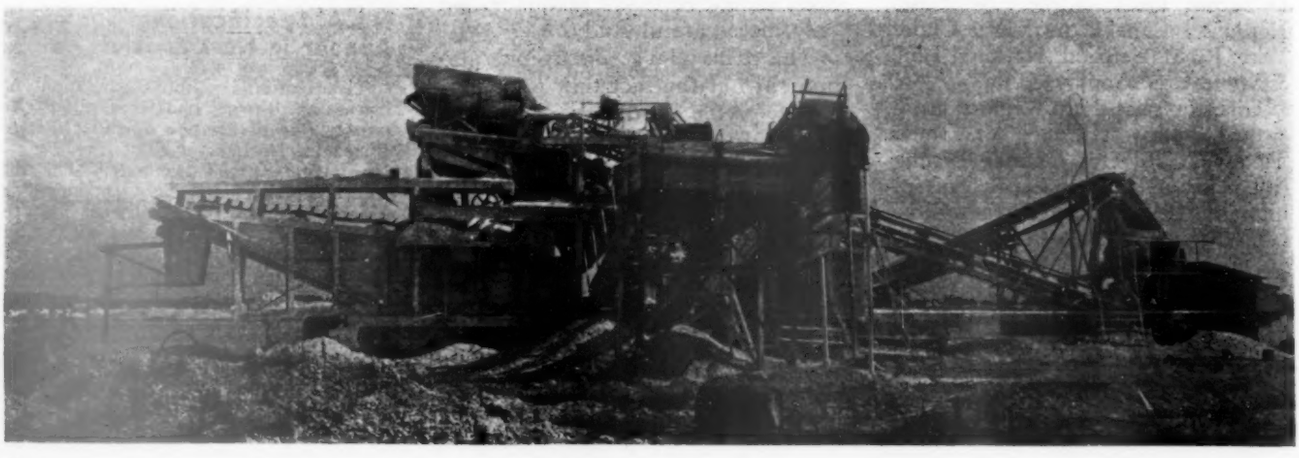


View of permanent plant which was moved from opposite side of Blue Lagoon to make way for airport.

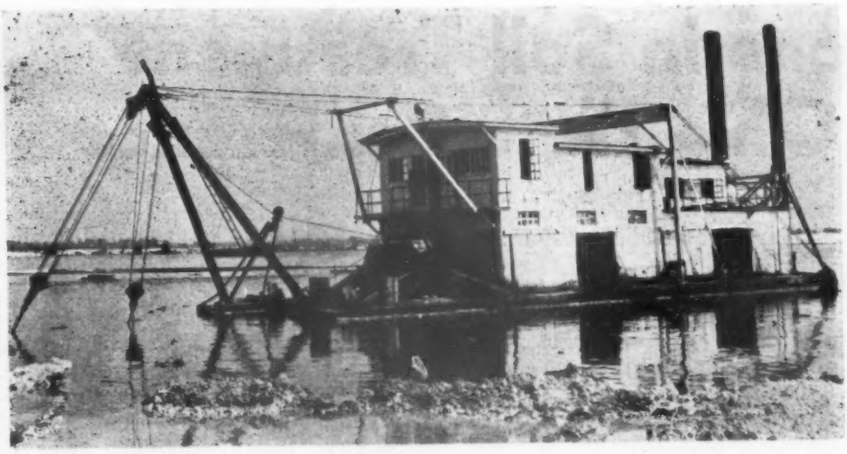
By WILLIAM M. AVERY

The portable plant was completed and in operation before the work of dismantling the permanent plant was begun, and it operated so successfully from the very start that it was not found necessary to start re-erecting the permanent plant until 8 months after it had been moved. The entire move took 10 weeks although the distance involved was only about three-fourths of a mile; bins were moved by a local transfer company. The success of the portable plant has led to a decision to set it up eventually as a permanent plant which can be fed either by dragline or with the hydraulic dredge operating in the lagoon. The company has recently installed a Caterpillar D-13,000 diesel engine on the dredge to generate power for operating deck gear and the cutter head in order to leave the full 225-hp. of the main drive available for pumping directly to the plant at all times. The auxiliary engine drives a 100-kw. generator, and the change has effected an increase in capacity amounting to about 20 per cent.

The portable plant produces about 125 cubic yards per hour compared with 150 cubic yards from the fixed plant, but represents a disproportionately smaller investment. The deposit being worked is unusual in several respects and is said to be the only one of its kind in Florida.



The portable crushing plant is entirely supported on two standard railway flat cars. Sand drag is at the left.



This 12-inch suction dredge pumps directly to the permanent plant. Unit has a 50-foot ladder with a 25-tooth revolving cutter head.

The 4- to 5-foot surface layer of soft, crystalline limestone is underlaid with 6 to 8 feet of porous lime rock and 4 feet of solid rock. Under this almost pure silica sand is found in varying depths, underlaid in places with coquina—or shellrock—in which there is considerable coarse

The 30- by 48-inch single-roll crusher in the portable plant.

sand. The present 12-inch suction dredge was installed in 1937.

The permanent plant of Seminole Rock Products Company was completely described in the August, 1941, issue of PIT AND QUARRY. No important changes were made except for the elimination of underground tunnels in the new setup. The plant was recently leased for a 10-year period to M. N. Hedrick, J. M. Gregory and W. L. Gregory.

California Firm Saves

(*from page* 77)

of the Basalt Rock Company are in Napa. Albert G. Streblow is president and general manager of the company. The concern's various plants in and near Napa, at Healdsburg, Antioch and in San Francisco produce a wide variety of products including, sand, gravel, crushed stone, bituminized aggregates, ready-mixed concrete, and concrete blocks. The company is preparing to expand its concrete-block operations at Napa by the installation of two more Besser Super Vibrapac block-making machines. When these improvements are completed, the Napa block plant will have one of the largest producing capacities of any similar operation in the country.

Nonmetallic Minerals

(*from page* 78)

because of a drastic decline in the military demands for lithium salts, production of these commodities dropped to about one-tenth of the 1944 figure. Strontium production also declined considerably.

Other Nonmetals Discontinuance of the Government premium prices for sheet mica led to the abandonment of many high-cost producing mines, and production dropped to about one-third of its 1944 volume. Sales of scrap mica for grinding dropped about 40 per cent. Because of a decline in military demands, iron oxide pigment sales were reduced. Graphite became available from foreign sources, and demands for domestic grades were confined largely to the amorphous type. Output was considerably lower than in 1944. Feldspar sales increased about 5 per cent. largely to supply the growing requirements of the glass industry.

A purchase price of $139,200 was reported as paid by the Ralph Rogers Company of Bloomington, Indiana, for the Newton County Stone Company of Kentland, Indiana. The property was sold by Florence U. Sherman, trustee.

U. S. Potash Output Increased by War — Called Adequate

An unanticipated benefit traceable to World War II is the fact that the United States is now almost self-sufficient in the production of potash. Whereas, before the war, approximately half of the potash used in this country was imported from Germany, we now produce virtually all that we need in our own plants.

The discovery of deposits in New Mexico and California, followed by mining developments and constantly improving production methods have been responsible for the remarkable increase in our potash supplies. According to recent statistics, 90 per cent. of the home-produced potash has been used for agricultural purposes, to bring about a 25 per cent. increase in crops during the year.

Improved Roads—Not Super-Highways Needed

Deluxe super-highways stretching without a break from coast to coast are not needed, Thomas H. MacDonald, Commissioner of Public Roads, says in an article in the first issue of *Holiday*, the new recreation and travel magazine.

"We have a 3,000,000-mile highway system," says Mr. MacDonald, "and large parts of it are relics of horse-and-buggy days. What we need, quickly, is to transform those deficient sections into modern highways." He further stated that improvements are most needed on main highways where they approach and enter the cities, as well as on feeder roads.

Cement Plants Seized By Premier of Greece

According to word from Athens, Premier Sophoulis has requisitioned all cement factories in Greece and a chemical, fertilizer and glass plant at Piraeus described as the nation's largest industrial concern. The explanation for this action is that the government intends to exercise control of the industry to promote a new reconstruction plan.

In line with the seizure of control, the new board of directors at the Piraeus factory, which employs 4,000 workers, consists of government and trade union representatives.

A report on the cement manufacturing industry in Canada in 1944, published by authority of the Hon. J. A. MacKinnon, M. P., Minister of Trade and Commerce, is now available upon application to the department at Ottawa. The price of the bulletin is 25 cents per copy.

The Waupaca Sand & Gravel Company at Custer, Wisconsin, was recently sold by Dr. C. R. Nutt to the F. F. Mengel Company, engineers and contractors. Plans of the new owners include the installation of a new sand-and-gravel washing and screening plant and later a ready-mix concrete and block plant.

Role of Agstone in Soil Treatment Discussed at Ohio Lime Conference

A FULL day was devoted to the program of the annual meeting of the Ohio Lime Conference which was held in the Administration building of Ohio State University on January 4, 1946. The speakers of the day were representative of the various groups and organizations interested in the study and development of agricultural limestone.

R. D. Lewis, Chairman of the Department of Agronomy, Ohio State University, who spoke on *What is Happening to the Soils of Ohio and What Can Be Done About It?* was introduced by James Eells, of Basic Refractories, Inc., and president of the Processed Limestone Association. Mr. Lewis emphasized that, while Ohio ranks 35th in area among the states, and its agricultural productivity is sixth, the productivity of Ohio soil has been decreasing. Crop production levels have been maintained and in some cases increased only by the application of new techniques employing germ plasm. He expressed the feeling that exploitation and loss of the basic soil resources should be secondary to a program of rebuilding and sustaining soil productivity. This program would call for some 30- to 35-million tons of ground limestone to rebuild, and from 1- to 2-million tons a year in maintaining the soil.

Contact with 17 dealers of fertilizer, grain and feed, and liming materials provided the basis for a discussion on *Effective Service by Local Dealers in Liming Materials* given by Earl Jones, Department of Agronomy Extension, Ohio State University. Answers to queries in the survey did not give a true picture of the trend throughout the state, but it was accepted as desirable to uncover the difficulties encountered in selling lime.

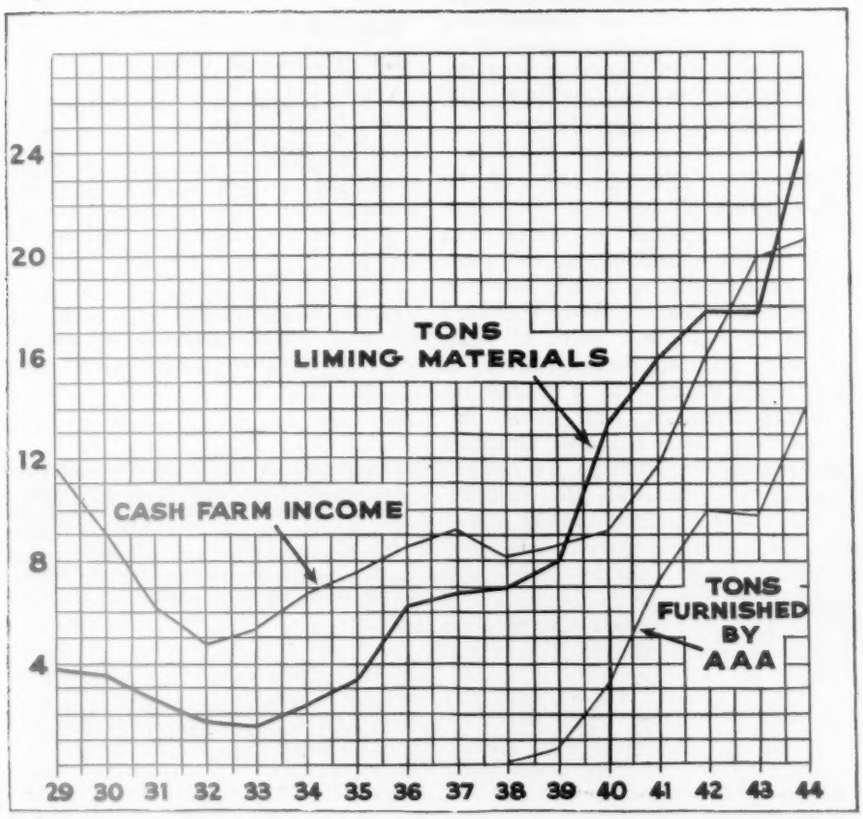
Henry A. Huschke, Managing Director of the Agricultural Limestone Division, National Crushed Stone Association, was asked to speak on *Liming Programs in Other States.* The accompanying chart was used by Mr. Huschke to show the tonnage of all liming materials used by farmers in the United States from 1929 through 1944. He stated that there is a definite parallel between the tonnage furnished by the AAA and the tonnage of liming materials consumed, and also that there is a correlation between cash farm income and consumption. Suggesting that 51 million tons of agstone should be used throughout the country annually, he advised that Federal Reserve Banks will make loans to farmers for purchasing fertilizer and lime to treat their land.

The 1946 AAA liming program was announced by Dale Williams, of the Ohio Agricultural Adjustment Administration. According to Mr. Williams, this program will utilize the purchase order system to assist farmers who desire to purchase limestone rather than contracting as done in the past. The farmer will obtain a purchase order from the county Agricultural Conservation Committee, made out to the dealer with whom he will do business. The State committee will pay the dealer an amount equal to the credit rate, approved for the township in which the limestone will be used, or the fair price, whichever is the lower. The farmer then pays the difference between the credit rate and the fair price which is determined upon issuance of the order. Mr. Williams further explained that limestone may be purchased without an order in which case the farmer is repaid at the township credit rate for the number of tons approved by the committee.

P. E. Heim, of the Carbon Limestone Co., and presiding officer of the afternoon session, introduced Kenneth Dameron, Professor of Advertising, Ohio State University, who offered suggestions which were intended to aid in advertising programs and to bring about an investigation of sales promotion activity and possibilities in the industry. During the war everyone wanted to buy, but in the post-war era, definite sales campaigns and policies are necessary, according to Mr. Dameron. The ensuing discussion on advertising possibilities disclosed that some means would have to be developed to aid in financing an advertising program on this commodity with such a narrow margin of profit.

The greatest cause for nutritional deficiency among farm animals is the lack of food, according to T. S.

(*Continued on page* 97)



Graphic analysis of agstone consumption for 1929-1944 in millions of tons used.

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from the Bettman Archive

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A modern jack-hammer crew gets things done in a hurry with Thermoid Air Hose.

YOUR business may never use air hose. Nevertheless, it should interest you to know that Thermoid has developed air hose that stands up better against heat and oil . . . to pulsating pressure . . . to cuts and bruises . . . to the abrasion of being dragged over jagged rocks.

Thermoid's leadership in producing superior air hose is typical of Thermoid's leadership since 1880, in the design and manufacture of *all kinds* of hose and belting for power transmission and materials handling. Consultation with a Thermoid representative may develop ways to help you improve processes and reduce costs. *It's good business to do business with Thermoid.*

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Method of Procedure for Determining the Surface Value of Limestone

By DALE C. WILLIAMS
Member, Ohio A.A.A. Committee
Columbus, Ohio

SO MUCH has been said in the argument about the relative value of coarse ground lime as compared to finely ground lime for agricultural use that the writer became intrigued with the idea of determining the surface on the particles which make up a ton of limestone. Since the immediate value of limestone depends on the amount of surface on the limestone particles, after quite some study, it was decided to give the problem a try, and this is the result.

The facts used are as follows:

1. The average weight of a cubic yard of limestone is 2,650 pounds.

2. Limestone, when crushed, breaks up into particles which are a little longer than they are wide and thick. The thickness depends upon how hard the stone is. Soft stone breaks up in egg shapes while the hard stone is inclined to be shaped more like a door knob. There are exceptions in both cases, probably due to the formative structure of the stone.

3. A ton of limestone broken up into exact cubes of a given diameter has exactly the same surface as a ton of the same density limestone broken up into exact spheres of the same diameter. Since limestone particles have rough surfaces and irregular shapes, the surface on them would be greater than the surface on cubes or spheres of the same weight. Therefore, the cube-shape surface calculations will give the minimum possible surface in a ton of particles.

4. Since it is impossible to segregate all the particles in a ton of limestone into groups of exactly the same size, it is impossible to measure exactly the surface on the particles in a ton of limestone.

5. It is, however, possible to measure the surface on all the particles in a ton of limestone on a cube-sphere basis. This should give a reliable basis for comparing the surface value of the various grades of limestone.

6. By running a representative sample of any grade of limestone through a series of official U. S. Standard sieves, the minimum surface of the particles can be determined.

This minimum surface value is obtained by mathematically breaking down the stone into exact cubes. The surface of a cube just passing a given sieve diameter can be determined.

7. The maximum surface would be obtained by breaking down the

Dale C. Williams

stone into flat particles whose length and breadth would be the diameter of the sieve opening and whose thickness would approximate the point at which the particle would break up into smaller particles.

8. The shapes of particles which pass the various sieves do not vary greatly, although they have a slight tendency to become more spherical in shape as they get smaller.

Using these facts, the formula for determining the minimum surface on the particles in a ton of limestone is derived by the following method:

A cubic yard of limestone divided into cubes one inch in diameter gives 72 surfaces for each direction of severance. And since to divide the cubic yard of stone into cubes it would have to be severed three ways for each cube, dividing the cubic yard of limestone into cubes an inch in diameter would make surfaces equal to 3 x 72, or 216 surfaces which are three feet square (9 sq. ft) 216 x 9 equals 1,944, the square feet of surface in a cubic yard of limestone broken down into cubes one inch square. Therefore, each time all the cubes in a cubic yard are divided three ways, the increase in exposed surface would be 1,944 sq. ft.

Taking the diameter of the opening in a U. S. standard sieve and dividing it into 1.0 gives the number of such diameters per inch.

The surface value formula for a cubic yard of limestone is then set up as follows: 1,944 times the number of diameters of sieve openings per inch equals the exposed surface in square feet of the cubes just passing the sieve opening used.

Assuming that the average cubic yard of limestone weighs 2,650 pounds, you then divide 2,000 pounds (a short ton) by 2,650 pounds and you get 75.47 per cent. (*i. e.* a ton of limestone is 75.47 per cent. of a cubic yard.) Taking 75.4 per cent. of 1,944 gives 1,467.2.

Revising the formula from a cubic yard to a ton basis produces the following formula: 1,467.2 times the number of sieve diameters per inch equals the exposed surface in square feet of the cubes just passing the sieve opening used.

Table I was obtained by applying this formula to each standard sieve.

TABLE I—SURFACE VALUE OF LIMESTONE

Sieve No.	Sieve Opening	Diameters per inch	Surface Value Sq. Ft. Per Ton
3.5	.223	4.4	6,579
4	.185	5.4	7,930
8	.093	10.7	15,776
10	.078	12.8	18,810
20	.0328	30.4	44,731
40	.0164	60.9	89,463
60	.0097	103.0	151,257
100	.0058	172.4	252,965
200	.0029	344.8	505,931
400	.0015	666.6	978,133

TABLE II—SURFACE VALUE FOR PARTICLES .0001 INCH TOO LARGE TO PASS THROUGH NEXT SMALLER SIEVE OPENINGS.

Sieve No.	Sieve Opening	Diameters per inch	Surface Value Sq. Ft. Per Ton
3.5	.1851	5.4025	7,926
4	.0931	10.7411	15,759
8	.0781	12.8940	18,786
10	.0329	30.3951	44,595
20	.0165	60.6060	88,921
40	.0098	102.0408	149,714
60	.0059	169.4915	248,677
100	.0030	333.3333	489,066
200	.0016	625.0000	917,000
400	.0001	10,000.0000	14,672,000

However, the particles passing a given sieve and not passing the next smaller sieve opening are not all the same size. Some are just able to pass through the sieve opening and others are enough smaller that they will almost pass through the sieve opening next smaller in size.

To compensate for this, the surface value was computed for the particles which were .0001 of an inch too large to pass through the next smaller sieve openings. These values are shown in Table II, above.

TABLE III
WILLIAMS' SURFACE VALUE

Sieve No.	Surface Value Sq. Ft. Per Ton
3.5	7,252
4	11,844
8	17,281
10	31,702
20	66,831
40	119,588
60	199,967
100	371,015
200	711,465
400	7,825,066

Adding the surface values in Table I to those in Table II for the same sieve size and dividing by two gives an average of the two computations which should approximate the surface of all particles passing the one sieve opening and not passing the next smaller sieve opening. These averages are shown in Table III.

The sample must be run through all the sieves in the table if the correct answer is to be obtained. It is not possible to omit any sieve without distorting the answer. Tables for various sieve combinations can be developed by using Tables I and II. Table IV was derived in this manner to give an approximation of the surface for purposes of comparison between grades.

How to Use Tables

Take a ground limestone sample which screens as follows:

No. 8	95	per cent.
No. 20	60	" "
No. 60	35	" "
No. 100	25	" "

Thus we have 5 per cent not passing No. 8, 35 passing No. 8 and not No. 20, 25 passing No. 20 and not No. 60, 10 passing No. 60 and not No. 100, and 25 passing No. 100. Applying these percentages to the surface values in Table IV:

			Sq. Ft. Per Ton
5%	of 10,000	=	500
35%	of 30,186	=	11,555
25%	of 97,223	=	24,306
10%	of 199,967	=	19,996
25%	of 584,983	=	146,246
Total			202,603

Table III is to be used when a full set of screens is employed. The screen analysis is applied to Table III in the same manner as the above screen analysis has been applied to Table IV when possible. Always begin with the screen through which 100 per cent. of the sample will pass.

TABLE IV
WILLIAMS' SURFACE VALUE

Passing Sieve No.	Not Passing Sieve No.	Surface Value Sq. Ft. Per Ton
...	8	10,000
8	20	30,186
20	60	97,223
60	100	199,967
100	...	584,983

By using the surface value of different samples the immediate value of any two can be compared. The surface value gives an answer to but one of the factors which should be used in determining the value of agricultural limestone, so the tables do not furnish a complete anaylsis of the actual value of any sample. Solvency of the various products and purity of the product are factors also to be considered.

Agstone

(*from page* 94)

Sutton, Professor of Animal Husbandry, Ohio State University, who talked on *How Liming Benefits Livestock and Livestock Products.* He stated that with proper and adequate treatment of soil, total feed production would be increased sufficiently to benefit both livestock and livestock products.

The closing speaker on the program was R. E. Yoder, Chief, Department of Agronomy, Ohio Agricultural Experiment Station, Wooster, Ohio, who spoke on *A Year-Round Liming Program.* He stated that the losses in farm soil still surpass limestone purchases and that the past sales promotion activity has not overcome the lead held by soil depletion. As a stimulus to sales promotion and advertising, in order to create a more universal demand for limestone, Mr. Yoder suggested such ideas as offering bonuses to dealers who oversell their quota, improvement of handling which will facilitate year-round spreading, and rental of spreading equipment to farmers.

Engineers of Americas To Meet Next Year

Dean S. S. Steinberg of the University of Maryland College of Engineering, who recently returned from an 18,000-mile trip through 12 Latin-American countries, stated that the first Pan-American engineering congress is scheduled to convene "sometime in 1946."

Dean Steinberg was sent on the tour by the U. S. State Department to conduct a survey of engineering in South American republics and to plan for a system of exchange engineering students, professors and literature. He stated that the proposed meeting would bring together engineers of all the Americas for an exchange of ideas.

Great Bauxite Deposits Of Northwest Described

Large reserves of ferruginous bauxite, an ore which may constitute an important source of alumina to supply Northwest aluminum plants, are described in a bulletin issued by the Oregon Department of Geology and Mineral Industries. The deposits are widespread in northwestern Oregon, but are found mainly in Washington, Columbia, and Marion counties.

Considerable interest in the aluminum-bearing deposits has been shown by some of the large industrial companies, and Alcoa Mining Company, a subsidiary of the Aluminum Company of America, is at present engaged in a large-scale drilling and exploration project on these deposits in Washington and Columbia Counties.

The Ohio Gravel Co. of Cincinnati will erect a $200,000 gravel-crushing plant near Camp Dennison, on a tract of 105 acres that was acquired in three parcels by the company. Officials estimate that material can be excavated to a depth of about 60 feet.

THE LIME PLANT OPERATOR

BY WOLF G. BAUER

CONDITIONS OF HEAT TRANSFER IN DIFFERENT LIME KILNS (Part II)

Wolf G. Bauer

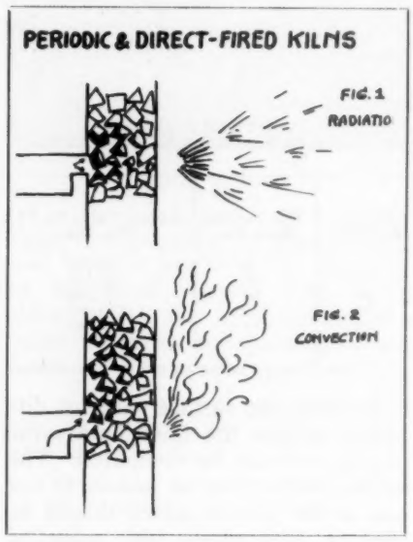
LAST month's treatment of rotary kiln heat-transfer conditions brought out the poor heat - exchange conditions between gases and stone in the kiln preheating section, and also indicated what might be done in order to obtain optimum heat transfer by radiation. In this issue, heat transfer in other types of kilns will be discussed.

Although heat distribution is of paramount interest in all kilns, and especially so in shaft kilns, this subject is more closely related to burner design and control, and so will be found as part of such discussion in a later issue.

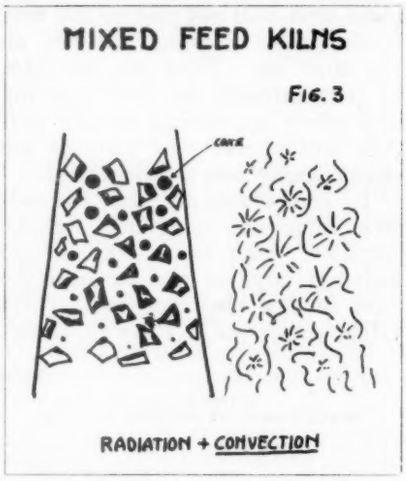
Shaft Kiln Conditions The conditions under which heat transfer is effected in the case of shaft kilns are substantially different from those existing in rotary kilns. In shaft kilns, as well as in similar devices such as vertical stone preheaters and coolers, or small stone vertical calciners, heat transfer is mainly by convection. Although radiation is a factor in the hot zone of vertical kilns, it is dependent on and modified by fuel-gas and combustion-air distribution. Such radiation from flames generated within the constricted passages between the particles of the charge is definitely inhibited and localized. Gas flow is turbulent within these spaces, and temperatures are high in those sections where gas and air are well mixed. In most kilns of this kind such combustion is localized and spotty, so that some of the lime and stone, making up the fuel- or air-deficient channels receive little heat, and that by radiation only. Since cooler and preheater are integral parts of such kilns, and good gas contacting obtains in these, the shaft kiln has obviously high heat-transfer capacity and efficiency, provided that lateral gas distribution is uniform.

Heat Generation There are four ways of generating heat from fuel and bringing this heat into more or less intimate contact with the lime and stone in the calcining zone.

1. (Periodic Kilns) Here the fuel is burned directly in a restricted and fixed combustion space within the material charge, and with cold combustion air from outside the kiln. This is the oldest method, and one still employed in some parts of the world. These "kilns" are built up with the limestone itself, and may be surrounded with a "shell" of dirt, sandstone, limestone masonry, or carved on three sides into a clay bank. The only good feature for purpose of illustration resides in the roomy combustion zone for high radiation effect, and the fact that the fire-box looses its heat to the surrounding charge.



2. (Externally-fired Draw Kilns) This type is the familiar old-fashioned shaft kiln. The heat and temperature distribution here are extremely poor for obvious reasons. The combustion air is drawn in cold from the outside, while lime is discharged quite hot. The draft is natural, and the stone is of necessity large. The kiln cross-section is restricted because of combustion gas penetration and distribution limits; efficiency is low due to sensible heat lost in hot lime, cold combustion air, and low heat transfer by convection due to low gas velocities through the kiln. The output is limited.



3. (Mixed Feed Kilns) These kilns comprise the third method of bringing heat to lime and stone in vertical calciners. Here we are limited as to type of fuel, which must be solid, and of low ash and volatile content. Coke and some anthracite are generally used, and these must be of carefully-graded size and uniformity to prevent kiln draft obstruction and hold the burning zone within a certain kiln level. It can readily be seen that any volatile matter in this fuel would be distilled off in the preheating zone, where such gases would be of no help in calcination. Advantages in this type of heat generation lie in the release of heat within the charge (somewhat analogous to submerged combustion), that air coming up the cooler is pre-heated and lime heat recovered, and that larger kiln cross-section can be employed because heat distribution is not limited by horizontal penetration of combustion or fuel gases.

Gas-Fired Shaft Kilns These kilns represent the fourth group of vertical kilns. The generation and subsequent distribu-

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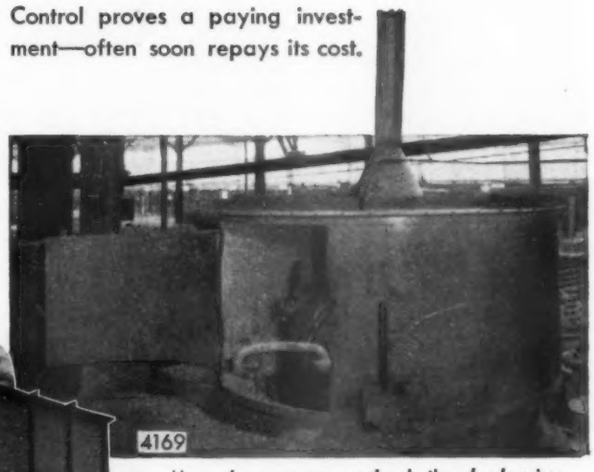
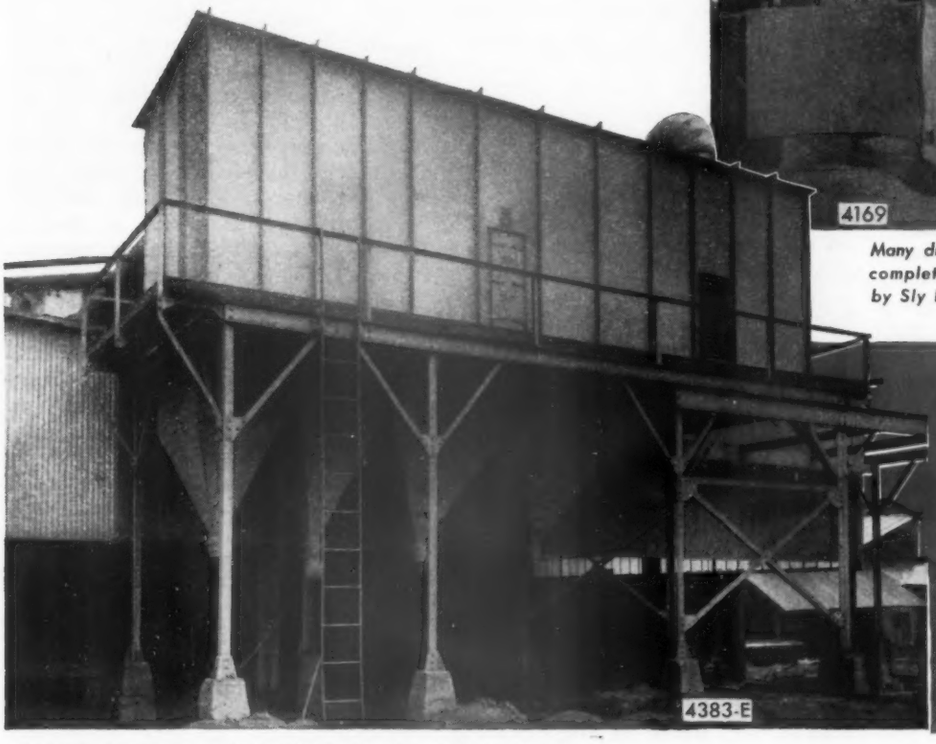


Many dry pans are made dustless by housing completely, as shown, and all dust collected by Sly Dust Filters (illustrated in top view.)



Sly Dust Collectors get all the dust by filtration through cloth. The Collector shown here filters silica dust out of 15,000 cu. ft. of air per minute.

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Ask for Bulletin 98, a 20-page illustrated publication giving important information about dust control and the advantages of the Sly method.

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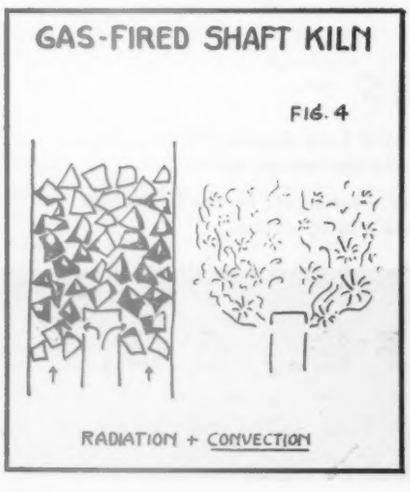
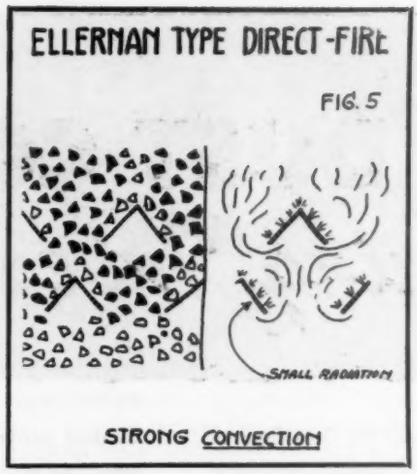
tion of heat for these calciners in the form of combustible gas lends itself to many refinements and improvements in calcining technique. By using natural or by-product gas, or gasified liquid and solid fuel, many of the disadvantages inherent in the aforementioned firing techniques are eliminated. With gas fuel, the generated heat can be more readily distributed under pressure and through strategically located ports, it can be more easily controlled, all combustion air can be preheated through the cooler, including also the air to gas producers as required; smaller sizes of stone can be calcined because of possibilities of using pressure-injected gases through centrally-located burners as in the Azbe center burners or the Bauer column burners, or as is done to some extent in the staggered-duct Ellernan, Bureau of Mines, and Kennedy-Van Saun burners. Because of the employment of gases, this lime-burning system can be arranged for high drafts and capacity, and semi-to full-automatic overall control.

Other Types Aside from sinter machines, rabble furnaces, railroad tunnel kilns and flash roasters which have all been tried, two kilns have recently put in an appearance. These kilns or calciners are probably not a solution to the burning problems confronting the lime industry, nor will they be likely to replace the modern shaft or rotary kiln systems. However they indicate a definite trend toward the utilization of smaller sizes of stone for burning. Their shortcomings and advantages are open to discussion and debate. However, in order to appear up-to-date and consistent, we will analyse them briefly and impartially, as we have the others, from the heat application standpoint, and later touch upon them and all others





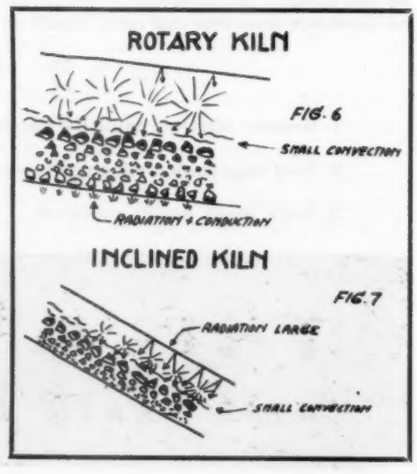
from the material movement and control angle.

In the Ellernan-type calciner, heat is generated in separate adjacent combustion chambers, the products of combustion reaching the material through refractory and staggered cross ducts. Since the unit is designed to calcine small sizes of stone just above the sand-size range, calcination is rather rapid, and allows of continuous downward movement of the charge. Heat transfer takes place even more by convection than in the common types of larger stone shaft kilns. In actual operation there is probably no particular harm in burning the fuel, only partially, as some lime-cooling air is allowed to pass up into the calcining zone. This air would act as a diluent and coolant if no unburned gases or carbon monoxide were present to combine with it in the calcining section. Radiant heat transfer is likely to be quite low in this device due to the rapid heat absorption and screening effect of the small particles. Control of calcination is achieved more by lime travel adjustments than by gas manipulations.

Since the cross-ducts have no separate ports and are small and closely spaced, the width of the calcining chamber is restricted. As working height is fixed by material height and draft requirements, lateral kiln extension is the only practical means of increasing the capacity and size of a unit. Such lengthening soon reaches practical limits due to discharge and control reasons.

To approach modern shaft-kiln and rotary-kiln output per unit or per plant involves too great a multiplicity of arrangements and therefore variables and attendance, repairs and adjustments, in order to compete favorably with simple one- or two-unit standard kilns of high capacity. Better utilization of preheat, heat from exhaust gases (which is still too high without air dilution), and higher gas working pressures for larger chambers and ducts designed for individual gas control could be achieved. Design improvement should hinge mainly around larger calcining chambers and redesign of cross-ducts. The inherent advantages of this kiln lie in the possibilities of calcining small sizes of stone at low temperatures with practically any fuel, and with the usual benefits that come from turbulent-flow convection heat transfer and automatic continuous operation when fully developed.

In the Nelson inclined stoker kiln we note an attempt to burn small sizes of stone in the heat-exchange manner of rotary kilns, but with an eye to smaller units of low investment. This calcining unit is also of very limited capacity, and therefore possesses such disadvantages as would arise from multiplicity of units and cumulative attention and control variables. Like the rotary, it enjoys the benefits of roomy heat-generation combustion chambers, but labors similarly under design restrictions or omissions of direct-contact turbulent-flow convection heat exchange in cooling and preheating sections. From a thermal standpoint, this design presents more lime-and-stone heating surface per bed volume than the rotary, because the material is not made to lie on a concave surface, and also because there are further opportunities for insulation not possible to such a degree in a rotary kiln. These advantages are offset by size segregation and little relative mixing of particles from top to bottom, so that radiant and gas-scrubbing heat is not received equally by all sizes. Improvements and design changes are obvious in respect to heat transfer. It would seem quite difficult, therefore, to maintain high production rates at reduced temperatures for uniformly-



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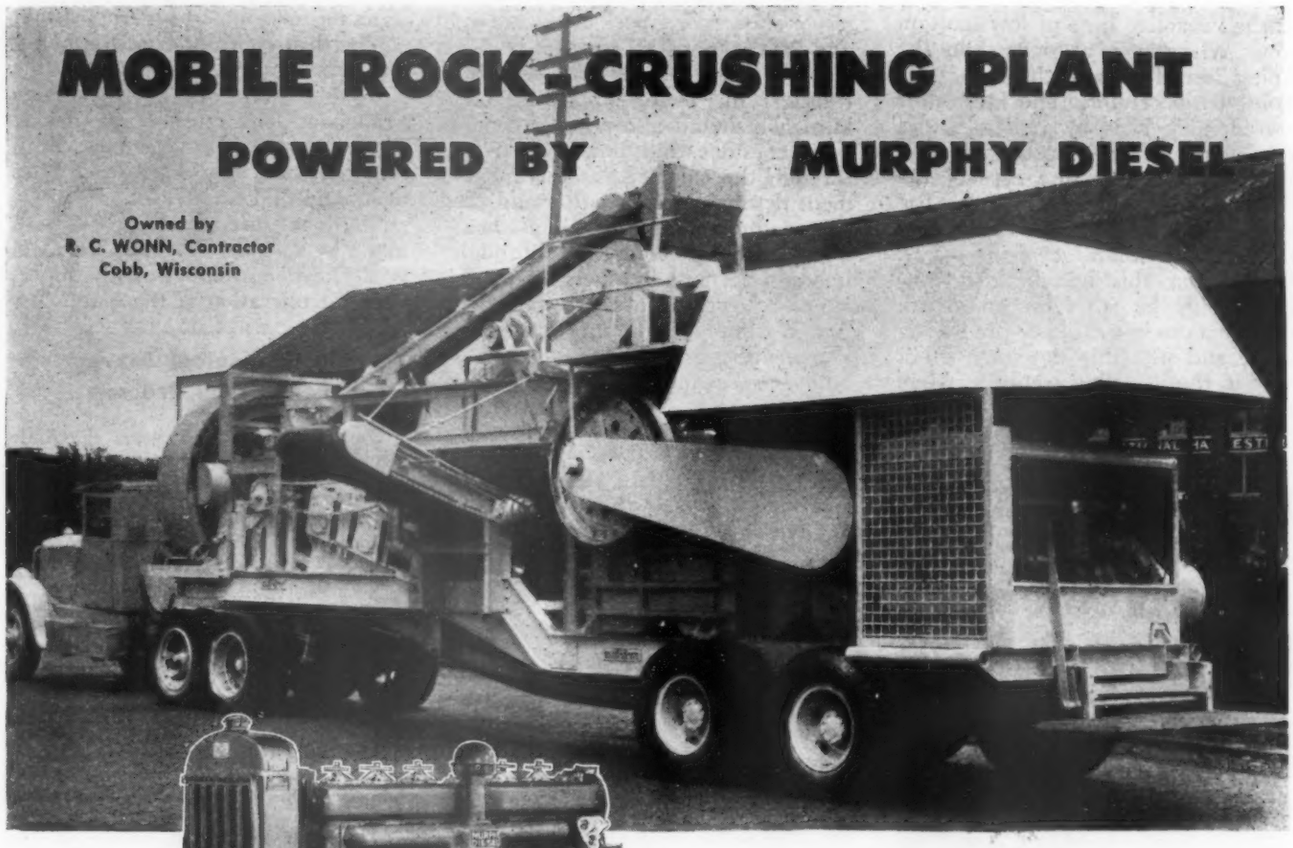

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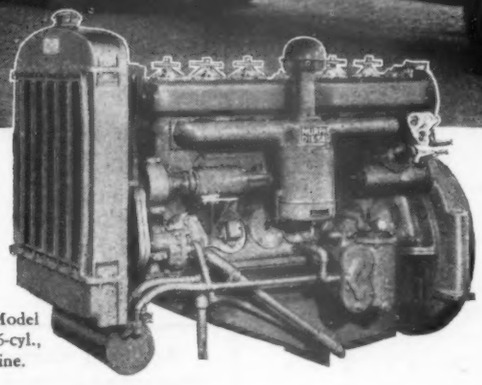

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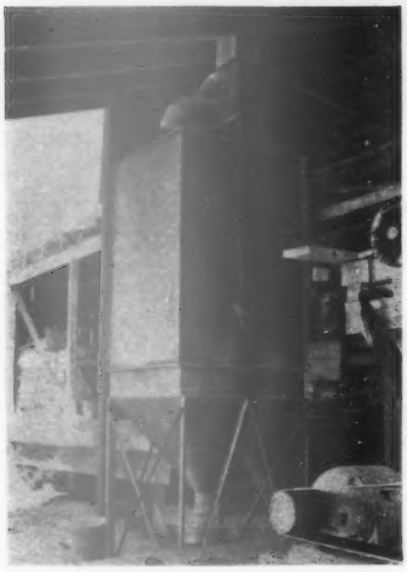
burned reactive lime of low ignition loss. Whereas in a rotary kiln the lining is continuously heated above lime temperatures, and transmits considerable heat by radiation and conduction to the buried material, this is not true in the case of the bottom lining or hearth in the hot zone of the inclined furnace. Despite the fact that exhaust gases are passed back under this hearth, heat flow could only be from gas to hearth to buried ore in the upper preheating zone, and probably flows the other way in the calcining section. If fuel ratios are high in this kiln, they are so because of high-intensity radiant heat from flames and reflecting crown at exceptionally-high operating temperatures. No technical data is available at the time of this writing to allow more specific conclusions and observations to be drawn

Aside from conditions of heat transfer in these aforementioned kilns, we should also analyze conditions of stone and lime movement through the calciners, as this movement determines calcination and exposure time. In some kilns heat distribution is controlled through fuel and burners; in others it is regulated by control over the relative flow of lime in different sections of the calcining zone, and in some cases both burner and material flow are under control. The article in next issue will concern itself with the flow of stone and lime through the various kilns, and how such movement can be brought under better regulation.

Improvements at Silica Plant Increase Output of Products



Crushed and ground silica for various industrial uses is produced in the plant of the Bristol Silica Company at Rogue River, Oregon. Poultry grits in the form of crushed granite are also turned out, the capacity of the plant being between 15 and 20 tons of material hourly.

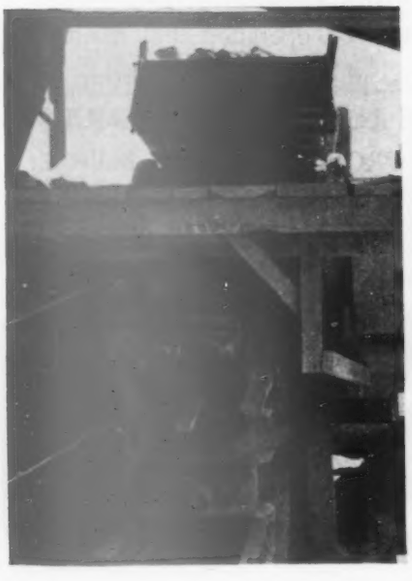
The quarry is located in the mountains several miles away, and the quartz and granitic stone are brought to the plant by dump trucks.

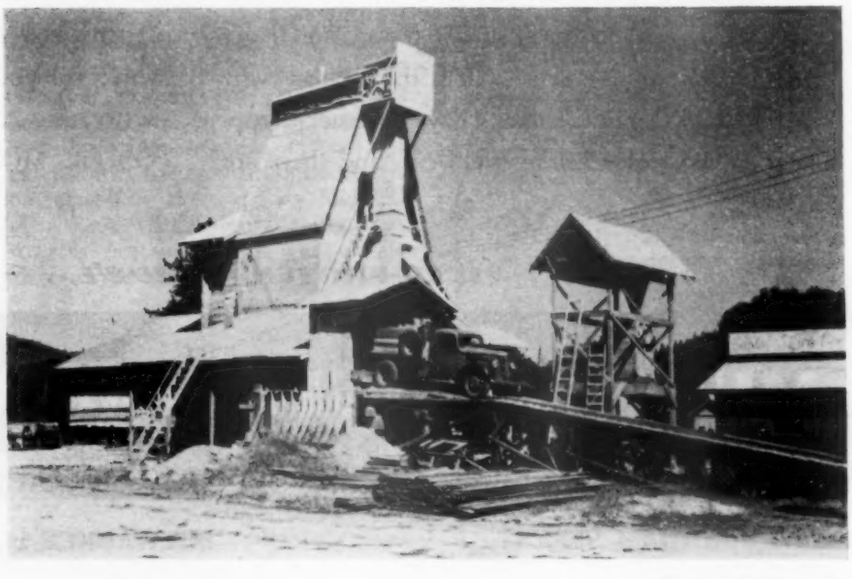
During 1945 the plant was improved by the addition of a new dust-collecting system and the installation of a new primary crusher.

The dust collector is of the cloth-bag type and was supplied by the Rees Blow Pipe Company of San Francisco. The crusher is a Pacific 10- by 20-inch jaw-type unit, manufactured by Alloy Steel & Metals Company of Los Angeles.

Shipments are, for the most part, made by railroad. Fayette I. Bristol is the owner and personally supervises the operation of the plant.

Left: New bag-type dust collector recently installed. Below left: The 10- by 20-inch primary jaw crusher. Below: The Bristol Silica Co. plant at Rogue River, Ore., showing a truck on the ramp discharging into the primary crusher.





Virginia Geological Survey Head Reports on Projects

During the past few years the State Geological Survey has been making an intensive investigation of the industrial limestones of Virginia. The completion of four of the field projects was announced today by Dr. Arthur Bevan, state geologist of the Virginia Conservation Commission.

Survey Bulletin 62 has been published on the first completed project, that of the New River-Roanoke River district. It is available from the Survey offices at Charlottesville.

Reports on two other projects will describe the limestones most useful to industry. One of these reports is on Shenandoah Valley, and the other is on the Clinch Valley district in southwestern Virginia.

The fifth project, a survey on the James River district, is nearing completion.

Several limestone firms have recently located new plant sites in these areas in southwestern Virginia, where the limestones are of unusual industrial value.

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PERSONAL MENTION

CHARLES E. ANDREWS, who for the last 25 years had been the New England manager for the Whitehead Brothers Company of New York City, as well as one of the firm's directors, retired from

F. B. Clarke

C. E. Andrews

active duty on December 31, 1945. Mr. Andrews had been with the company for over 41 years.

F. B. CLARKE, who has been associated with Whitehead Brothers for the last 28 years, has been appointed New England sales district manager to succeed Mr. Andrews.

COMDR. CHARLES M. NOBLE, U.S.N.R., who has been serving with the U. S. Navy Civil Engineer Corps, has been appointed as New Jersey state highway engineer, a post left unoccupied since 1942, when James Logan resigned. Mr. Noble is expected to assume his new duties about February 1.

J. G. BUTLER III was recently elected a director of the Industrial Silica Corporation of Youngstown, Ohio. He succeeds J. W. Ford, who resigned.

Martin A. Hoey

MARTIN A. HOEY was recently appointed executive assistant to the general manager of the Canada Cement Company, Ltd., of Montreal.

During World War II Mr. Hoey served in the Dominion's Department of Munitions and Supply and also as Deputy Steel Controller and Associate Controller of Canada. He joined the Canada Cement Company in 1912.

FRANK H. GATES, president of the sand-and-gravel firm which he founded in 1919, recently sold the business to the Southern Pacific Milling Co. It has been estimated that during these 27 years more than 1,000,000 tons of gravel have been removed from the quarry in the former bed of the Sisquoc River.

ERNEST L. BAILEY, former West Virginia state road commissioner, has resigned from this position to resume his practice as a consulting engineer. Mr. Bailey, who has been a state officer for many years, also recently retired as president of the Southeastern Association of State Highway Officials. In the latter office, he had taken a leading part in the movement to eliminate state-line barriers in highway construction and use.

HARRY B. ROBERTS was appointed sales manager of the Union Portland Cement Company at Salt Lake City on January 1. He will replace F. M. Maher, who retired because of ill health.

K. A. STOTLER, is back at his old position as treasurer of the Pioneer Sand & Gravel Company of Seattle after serving for several years in the United States Navy. His rank was that of a lieutenant-commander.

GEORGE DONALD was recently named a representative in the Midwest territory for the Medusa Portland Cement Company. Mr. Donald will make his headquarters in Minneapolis.

PRESTON J. EVERETT, oldest employee of the Northampton plant of the Universal Atlas Cement Co., was honored upon the occasion of his retirement recently. Mr. Everett, personnel and employment manager, started at the plant in 1893 when it was known as "The Old Valley Mill." Later the firm became the Atlas Cement Co. and subsequently the Universal Atlas Cement Co.

J. T. HARGIS, who was formerly analyst for the Arkansas Portland Cement Co. at its Okay, Ark., plant, was recently made chief chemist. Mr. Hargis has been in the Okay laboratory for the last 18 years. He succeeds Charles R. Jackson, who died on January 24.

WILSON P. FOSS, III, who was released from the U. S. Navy after 3½ years of service, has been appointed vice-president and general superintendent of the New York Trap Rock Corp. of New York City. He will make his headquarters at the Newburgh, N. Y., office.

Mr. Foss served in the Pacific theater as a lieutenant, senior grade, in charge of a PC boat (sub-chaser).

JAMES MCWHIRTER was recently appointed superintendent of the Natrona, Pa., plant of the Pennsylvania Salt Manufacturing Company. He succeeds Charles G. Boone, who has retired. Before joining Pennsalt last year Mr. McWhirter had been superintendent of plants in Detroit and Cleveland for the General Chemical Co.

CAPTAIN JACK RYAN, formerly of the 313th wing, U.S. Army Air Force, has joined the sales staff of the Northwestern Portland Cement Company of Seattle. He will have his headquarters in the company's general office in Seattle.

COL. FRANK NEWNAN, who was in charge of the China Service of Supply, has launched a new consultation service at Houston, Tex. The organization specializes in the production and use of gravel. Research in plant and pit production for the improvement of the product and consultation with gravel buyers are the main services of the new group.

Colonel Newnan, in pre-war days, was associated with the Texas state highway department and with the Galveston office of the U.S. Army Engineers Corps. During his stay in China, in 1944, he was chief engineer of the Service of Supply operations, an assignment involving handling engineers' supplies for all American and Chinese forces in China, as well as maintenance and construction of all army camps and installations other than airfields.

J. F. Coleman, Jr.

J. FRED COLEMAN, JR., recently began his duties as district engineer for the General Crushed Stone Company of Easton, Pa., in the Philadelphia district.

Mr. Coleman had been employed by the Pennsylvania Department of Highways for the last 15 years, recently as district materials engineer in the Philadelphia metropolitan area.

E. M. LINDENAU recently resigned from his post as senior mining engineer with the U. S. Bureau of Mines in Salt Lake City. He had been engaged in exploration work for strategic minerals and in research related to these minerals. Mr. Lindenau will establish headquarters in Tucson, Arizona, as a mining consultant.

WILLIAM M. RAND, who was formerly vice-president of the Monsanto Chemical Company of St. Louis, has been named president. Mr. Rand will succeed Charles Belknap, who has retired but will continue to serve as chairman of the executive committee.

ELLIS JENSON has been appointed treasurer of the Janesville Sand & Gravel Company at Janesville, Wis. Before joining this firm, Mr. Jenson was director of labor relations research for three years with the Allis-Chalmers Manufacturing Company.

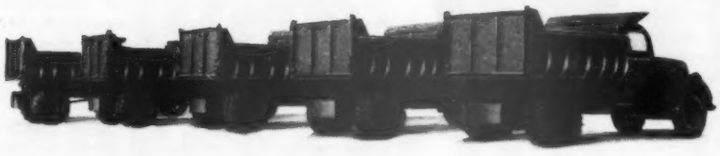
O. C. HUBBARD has been named manager of the Products Division and advertising manager of the Medusa Portland Cement Company, Cleveland, Ohio.

DR. W. J. KNAPP, who was formerly with the North American Cement Co., was recently named one of several new members of the research staff at the Pennsylvania Salt Manufacturing Company's Whitemarsh Research Laboratories. (See August, 1945, issue of PIT AND QUARRY, page 57.)

Dr. Knapp, who was recently discharged after serving in the U. S. Navy, will work on the development and evaluation of ceramic chemicals.

WILLIAM L. PLATT has been appointed sales representative for the Columbia Chemical Division of the Pittsburgh Plate

Give 'em H-C Boys!



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HERCULES STEEL PRODUCTS COMPANY . . . GALION, OHIO

Glass Company, as announced by W. I. Galliher, executive sales manager for the division. Mr. Platt will be located at the company's offices in Boston.

Prior to Mr. Platt's appointment to the Columbia Chemical Division in 1930, he was associated with the company's Glass Division.

JOSEPH L. HOHL, assistant to plant manager of the Hudson, New York, plant of Universal Atlas Cement Company, a United States Steel Corporation subsidiary, recently became assistant plant manager. He had previously been associated with the Coplay Cement Manufacturing Company, the Bethlehem Steel Corp., the Research Corp., Consolidated-Vultee Aircraft and Republic Aviation Corp.

E. A. Ledyard

E. A. LEDYARD, executive chemist for the Monolith Portland Cement Co. cement plant at Monolith, Calif., and also for the Monolith Portland Midwest Co. plant at Laramie, Wyo., has taken over the duties of acting superintendent of the Laramie plant.

A. J. ANDERSON, who has been for many years Monolith Portland Midwest's superintendent at Laramie, is at present devoting his full time to superintending the alumina plant built by the government at Laramie.

BAYARD MAGEE, who was formerly manager of the National Gypsum Company's lime plant at Bellefonte, Pa., is now supervising the construction of the firm's $2,000,000 lime plant at Kerns, Va. For the last 20 years Mr. Magee has been engaged in projects involving the rotary calcination of lime. He joined National in 1940, when the company purchased the Chemical Lime Company's plant in Bellefonte, of which he was then manager.

When completed, the Kerns plant will have a greater production capacity than any of National's other lime plants.

CHARLES V. HARRIS has accepted an assignment with Cia. Minera La India as mill superintendent in Managua, Nicaragua. Mr. Harris was formely engaged in research activities for the International Minerals & Chemical Corporation.

ROBERT DAVIES, formerly associated with the Consolidated Rock Products Company of Los Angeles, recently was promoted to the rank of Lieutenant Colonel. He is now an instructor at West Point, teaching cadets in flying B-17's.

WILLIAM P. SCHWINDT, A. A. HOFFMAN, LEWIS A. PARSONS and M. J. LONDON have been named to new offices on the staff of the Calaveras Cement Company of San Francisco.

Mr. Schwindt was named assistant vice-president and sales manager; Mr. Hoffman, consulting engineer; Mr. Parsons, consulting technologist and Mr. London, traffic manager. The announcement was made by H. C. Maginn, vice-president and chairman of the operating committee.

H. H. Miller

H. Hershey Miller has been reappointed special engineer representative by the Pennsylvania Sand and Gravel Producers' Association. Mr. Miller has been associated with the Pennsylvania State Highway Department, the Pennsylvania Turnpike Commission and the Calcium Chloride Association.

MAURICE C. TAYLOR, former research manager at the Niagara Falls laboratories of the Mathieson Alkali Works, has been named resident director of research and development.

ROY N. YOUNG has been elected vice-president and operating manager of the Lehigh Portland Cement Co. of Allentown, Pa., according to an announcement by Joseph S. Young, president.

Mr. Young succeeds H. R. HAUSMAN, vice-president and assistant general manager, who recently retired from the Lehigh staff after 44 years of service.

C. A. Clem

CAPT. C. A. CLEM, who has spent the last 42 months with the Chemical Warfare Department, has resumed his former duties as chief chemist for the Signal Mountain Portland Cement Co. of Chattanooga, Tenn.

Before joining the Signal Mountain staff, Captain Clem was associated with the Florida Portland Cement Co. of Tampa, Fla., and the National Cement Co. of Ragland, Ala.

LAURN E. HETRICK, Wolverine's new chief chemist, replaces L. C. Nodell, who resigned. Mr. Hetrick has been chemist for the Green Bag Cement Co. of Pennsylvania, the Longhorn Portland Cement Company, Cementos Guadalajara and Cemento Portland del Bajio, the last two located in Mexico.

DAVID SAMUEL has been engaged as assistant to the plants manager.

FRED H. RYAN, formerly a major in the U. S. Army Air Corps, was appointed district engineer in charge of the Portland Cement Association's Atlanta office. He will direct association activities in Florida, Georgia and South Carolina.

Before joining the army in 1942, Mr. Ryan had served the association for eight years as field engineer in Michigan.

OBITUARY

RALPH MINOR KAPP, 65, vice-president of the Granite Bituminous Paving Company of St. Louis, succumbed to a heart attack on January 16 at Miami Beach, Fla., where he had been vacationing for his health. Mr. Kapp had been associated with the firm for 40 years.

SAMUEL P. BURNAM, 58, president of the Kentucky Stone Co. of Louisville, Ky., died in that city on January 16. Mr. Burnam had been president of the firm since 1936.

ROBERT E. LONG, a former district sales manager of the Lehigh Portland Cement Co. of Pittsburgh and New Castle, died in Minneapolis on January 9. Mr. Long was associated with Lehigh from 1925 to 1936.

THEODORE M. STUART, 60, president of the Yosemite Portland Cement Company of Merced, Calif., died at San Mateo on January 16. Mr. Stuart was a captain in the judge advocate general's department during World War I.

WILLIAM JACKSON, JR., 70, general manager and superintendent of the Jackson-Bangor Slate Company at Pen Argyl, Pa., died in that city on January 12. Mr. Jackson had headed the staff of the firm for 50 years.

E. D. GOLDRING, 44, chemist for the Western Fluorspar Co., was found dead recently in the firm's mine near Cowdrey, Colo. The mine had been closed shortly before Mr. Goldring's body was discovered.

C. R. JACKSON, chief chemist at the Okay, Ark., plant of the Arkansas Portland Cement Co., subsidiary of the Ideal Cement Co., died on January 25.

ARTHUR R. HALEY, general manager of the Pittsburgh Plate Glass Company's Columbia Cement Division, died at his Zanesville, O., home on February 14. Death came a few hours after Mr. Haley suffered a heart attack.

He had been associated with the firm since January 1, 1941. Previously, he had served as president and general manager of the J. P. Loomis Coal and Supply Company.

HERBERT W. CALDWELL, 79, former president of the Cleveland Quarries Co., died on January 12 at his home. At the time of his retirement in 1940, Mr. Caldwell had been affiliated with Cleveland Quarries Co. and its predecessor firm for 50 years. For the last ten years of his service, he was president of the company.

ROBERT G. RUSSELL, 47, a partner of the Superior Sand & Gravel Company of Denver, died recently in that city. Mr. Russell was also secretary of the Russell Coal Company.

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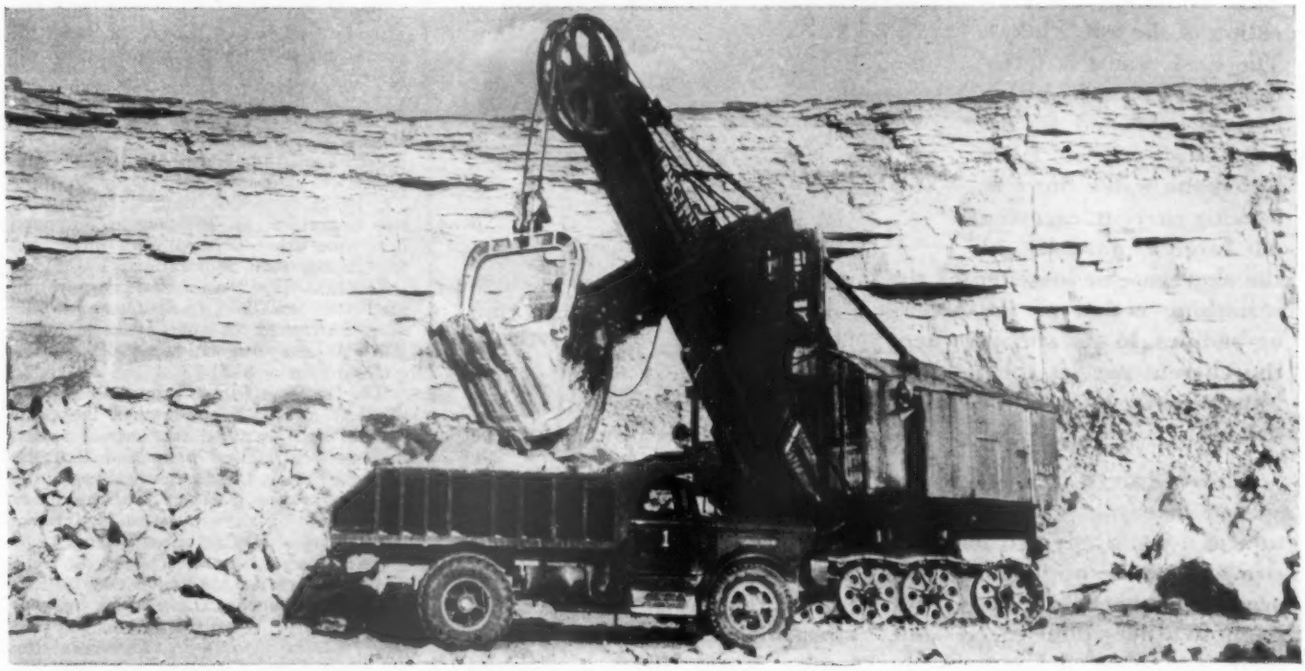

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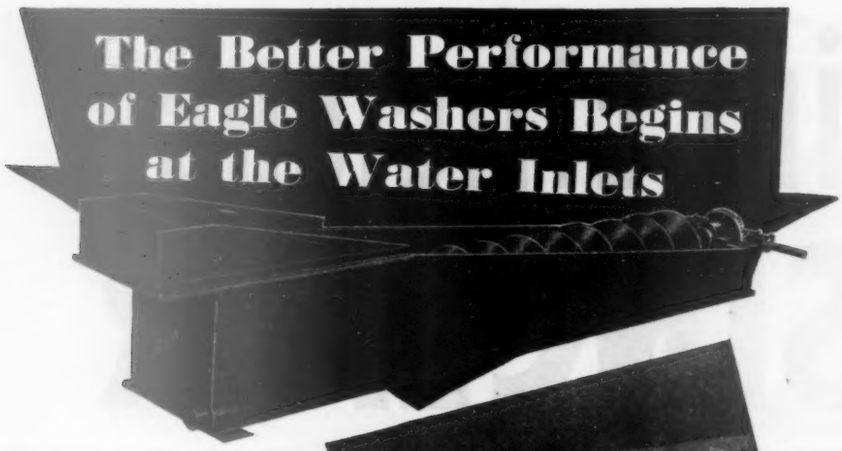

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Legal Decisions

By LEO T. PARKER

Partnership Incorporated

Considerable discussion has arisen from time to time over the legal question: When is a newly organized corporation liable on contracts or debts of a pre-existing partnership?

According to a new higher court decision the mere fact that a corporation was organized to take over the business of an individual or partnership is *not* sufficient to render it liable for a debt incurred by such individual or partnership, providing *new* persons, *in addition* to the partners, form the new corporation.

In other words, when a partnership is incorporated there is no legal identity between the corporation and the pre-existing association, even though the name and some of the members are the same.

For illustration, in *St. Clair Lime Company v. Ada Lime Company,* 162 Pac. (2d) 547, reported December, 1945, it was shown that the Ada Lime Company was a partnership prior to June 19, 1942, on which date a corporation was organized. In addition to the partners nine other persons were incorporators in the new corporation.

In early 1945 the new corporation sued the St. Clair Lime Company for lime purchased by the latter between July 11 and August 15, 1942, in the total amount of $431.73.

The St. Clair Lime Company defended the suit on the grounds that the partnership had breached its contract to sell lime at a stipulated price and that the new corporation, which took over the business of the partnership, was liable for breach of this contract for credits and damages amounting to $4,856.

It is interesting to observe that the higher court refused to listen to any testimony regarding transactions prior to June 19, 1942, when the Ada Lime Company was incorporated. Therefore, the St. Clair Lime Company was held liable in full to the new corporation, and it could not collect any damages nor receive credits from the new corporation for transactions with the old partnership *because* other persons in addition to the partners were incorporators in the new corporation. This court said:

"In this case there were nine incorporators in addition to the members of the former partnership. . . . There is no implied liability where new capital is invested in the corporation by third parties."

On the other hand, see the leading case of *Cunningham v. Spencer,* 239 P. 444, wherein the testimony showed that the partners in a partnership organized a corporation.

In holding the new corporation liable on debts, contracts and other obligations assumed by the partnership the higher court said:

"Where a corporation has been formed of members of a partnership subsequent to the incurring of a debt, . . . it will be presumed that the corporation assumed the partnership debts, and it will be prima facie liable therefor."

Widow Denied Benefits

Generally speaking, neither injured employes nor dependents may receive payment of compensation under the State Workmen's Compensation Act, if the testimony proves that a state law was violated which stipulates when a claim must be filed or when the injury must have been sustained.

For example, in *Barnhart v. State Compensation Commissioner,* 35 S. E. (2d) 686, reported January, 1946, it was shown that a state law provides that dependents of a deceased employe are entitled to receive compensation payments *only* if the testimony shows that the employe died from silicosis within one year from the date of his last exposure to silicon dioxide dust in reasonable quantities.

An employe was last exposed to silicon dioxide dust on April 3, and died from silicosis on April 4. In other words, the employe died from silicosis one day beyond the statutory one-year period within which death must occur in order to entitle dependents to compensation payments. However, his widow filed her application for benefits within the period specified by a state law. In holding the widow *not* entitled to compensation the higher court said:

"There is no merit in the contention of the claimant (widow) that the filing of her application on April 3, brings the claim within the statute."

Employe Had Burden

Modern higher courts consistently hold that an employe who claims compensation for an injury has the burden of proving that he sustained the injury while working "within the scope of the employment."

For instance, in *Fitzgerald v. Atlas Asbestos Company,* 44 Atl. (2d) 316, reported December, 1945, it was shown that an employe was totally disabled as a result of a skin condition due to various compounds used in his work. However, the employe failed to definitely prove that the infection of his skin was "due to oils, cutting compounds, lubricants, dust, liquids, fumes, gases, or vapor," which he contacted while performing his regular work.

Therefore, the higher court refused to award the employe compensation under the State Workmen's Compensation Act. This court said:

"Claimant (employe) had the burden of proof."

Can Sue for Damages

It is well known that employers who carry industrial insurance under the State Workmen's Compensation Act cannot ordinarily be sued for damages by an injured employe. However, an employer who fails to carry industrial insurance for employes may be sued for damages.

For example, in *Wegley v. Snyder,* 62 N. E. (2d) 299, reported June, 1945, it was shown that a man named Snyder operated a filling station and lubritorium. Also, he was the owner and operator of a gravel business located near the filling station and lubritorium. One day an employe was killed while parking Snyder's gravel truck on the filling station lot. Snyder carried industrial insurance to protect employes injured while working in the gravel pit, but he did not carry insurance on employes in the filling station.

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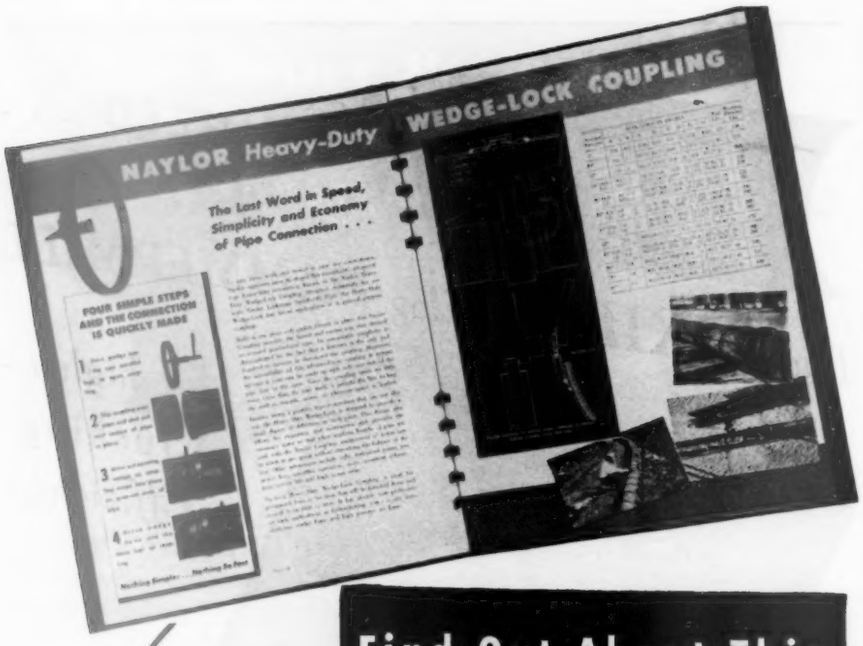
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Therefore, the higher court held that the employe's dependents privileged to sue the employer for damages.

Robinson-Patman Law

The Robinson-Patman Act was intended to broaden the scope of the Clayton Anti-Trust Act. Also, this law confers upon the Federal Trade Commission the power of determining discrimination, and the one charged with discrimination must prove "fair dealings" or he is subject to penalties. Recently, a higher court held that a brokerage company, which is also a distributor of products which it buys from processors, cannot legally accept brokerage on purchases made for its own account.

For example, in *Southgate Brokerage Company, Inc., v. Federal Trade Commission*, 150 Fed. (2d) 608, reported September, 1945, it was shown that a purchaser does a large business and distributes merchandise which it buys from manufacturers. The Federal Trade Commission ordered the purchaser to cease from accepting brokerage on purchases made for himself.

The higher court held that proof of services including promoting, selling, adjusting claims, invoicing, collecting, and assumption of credit risks, did not vary the commission's decision and order.

Anti-Trust Laws

Modern higher courts consistently hold that in suits founded on unfair competition, Robinson-Patman Act, or the Sherman or Clayton Acts, the jury must decide certain questions.

For illustration, in *Package Corporation v. Seal Company, Inc.*, 141 Fed. (2d) 972, it was shown that a manufacturer alleged that a corporation had conspired to drive him out of the business by selling products below prices necessary to realize reasonable profits.

However, since the manufacturer did not prove that the corporation had sold products in direct competition the higher court refused to hold in favor of the manufacturer because laws forbidding price discrimination were not shown to have been violated.

On the other hand, this higher court held that it is proper for a jury to decide whether, as alleged by the manufacturer, he was compelled to close his business and lose his investment, and profits.

See Story *Parchment Company v. Paterson Company*, 282 U. S. 555. This was a treble damage suit under the Sherman Act. In this case a manufacturer sued competitors and alleged that he was "run" out of business because his competitors combined and conspired to injure him and sold their goods "below the point of fair profit, and finally below the cost of production."

In holding in favor of the manufacturer, the higher court said:

"There was evidence from which the jury reasonably could have found that, in pursuance of the conspiracy, respondents sold their goods below the point of fair profit, and finally below the cost of production. . . . We are of opinion that it was open to the jury to find that the price cutting and the resulting lower prices were directly attributable to the unlawful combination."

Clayton Act

The Clayton Anti-Trust Act makes price discrimination unlawful only in

case it tends to prevent competition. Therefore, a seller does not violate this law simply because he "cuts" prices *unless* the testimony *proves* that the lower price prevents competitors from taking business away from the "price cutter" which they might have secured had he not lowered his price below what he was charging elsewhere.

For illustration, in *Samuel H. Moss, Inc., v. Federal Trade Commission,* 148 Fed. (2d) 378, reported 1945, a seller was shown to have charged different prices for its merchandise in different localities.

The higher court held that the seller would have been guilty of violating the Clayton Act only if the testimony proved that the lower price prevent or "tended to prevent" any competitor from taking away business from the seller.

Also, this court explained that a seller is not guilty of violating the Clayton Act if he proves that his lower price did not undercut competitors, but merely "met" their "equally low price."

Contractor Injures Contractor's Employe

An important case is *Wilis Sand and Gravel Company,* 59 N. E. (2d) 730, reported 1945. The lower court awarded an employe of a general contractor a verdict against a sub contractor for $10,000 damages. The employe proved that he was seriously injured when a rock was blown through a window by a sub contractor into a building in which he was working.

The higher court approved the verdict.

Fair Labor Standards Act

If an employe does "any" interstate work, he must be paid wages specified by the Fair Labor Standards Act.

See *Southern California v. McKeown,* 148 Fed. (2d) 890, reported 1945, where only 7 per cent of an employe's time was spent doing such interstate commerce work as checking invoices, freight and bills of lading for his employer.

The higher court held that this employe is entitled to be paid wages specified by the Fair Labor Standards Act, and said:

"There seems no logical reason why there should be any difference in the substantiality of the amount of 'affecting of' or being 'in' commerce to bring employment under either act."

Statute of Frauds

According to a new higher court decision all verbal contracts are void which cannot be performed or fulfilled within one year.

For instance, in *Kurtz v. Ford,* 62 Fed. Supp. 255, reported November, 1945, it was shown that a man named Kurtz sued a company for damages in the amount of $85,000 predicated upon an oral contract allegedly made in 1938.

In refusing to hold the company liable the higher court explained that every agreement, contract, or promise *not* to be performed within one year, from the making thereof, is void unless it is in writing and signed by the contracting parties.

"Damages" Defined

Very frequently the word "damages" is used in contracts of different kinds. It is important to know that a recent

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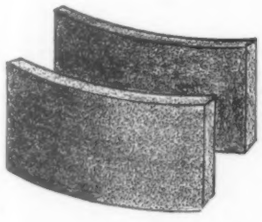

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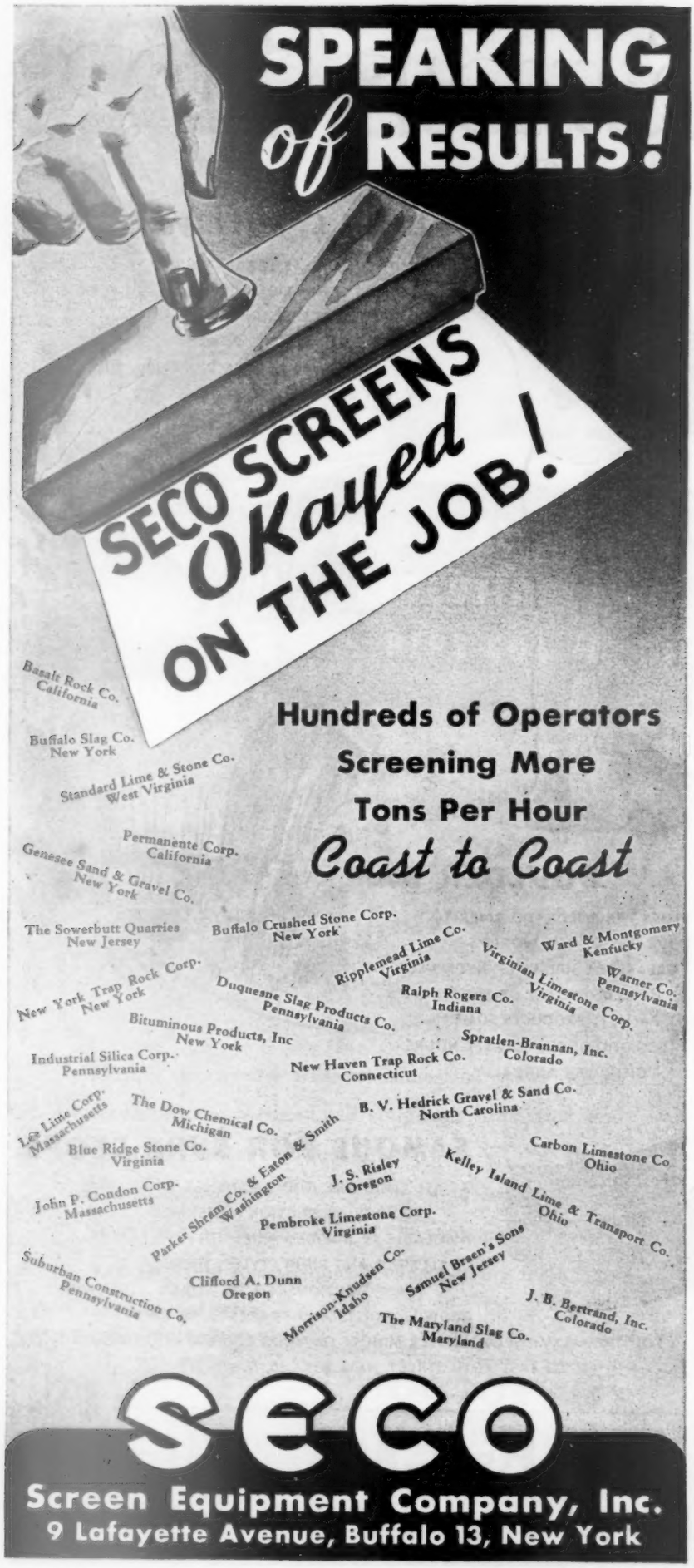
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Ralph Rogers Co. Indiana
Bituminous Products, Inc New York
Spratlen-Brannan, Inc. Colorado
Industrial Silica Corp. Pennsylvania
New Haven Trap Rock Co. Connecticut
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The Dow Chemical Co. Michigan
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higher court broadly construed this word, when used in a construction contract, to include *all* injuries whether or not caused by negligent or "unlawful" acts of the contractor.

For illustration, in *Freigy v. Gargaro Company, Inc.*, 60 N. E. (2d) 288, reported 1945, it was shown that a city and a contractor entered into a written contract to perform excavation work. A nearby property owner sued the city and contractor to recover damages for injuries to his frame building alleged to have been caused by the settling of the foundation, the support of which was weakened by drainage of the water table in the subsoil beneath the street.

During the trial testimony showed that a clause in the contract provided that the contractor agreed to pay all "damages" for injury to real or personal property. The contractor argued that he was not liable, nor required to protect the city against the damage suit filed by the property owner. The contractor contended that since his negligence did *not* result in injury to the residence he could not be held liable in damages.

However, the higher court construed the word "damages" to mean that he must protect the city against suits for *all* injuries to private property, resulting from performance of his work, whether or not he was negligent.

Questions and Answers

[Mr. Parker will be glad to answer questions regarding legal problems of PIT AND QUARRY readers. Questions should be addressed to Leo T. Parker, Legal Editor, PIT AND QUARRY.—Ed.]

Legal Editor, PIT AND QUARRY: Can a motor truck driver be held responsible for payment of damages if he injures a person? We have a situation of this kind where the driver disobeyed our instructions and killed a person.—Carson Quarry.

Answer: In order to avoid worry, complicated litigations and subsequent heavy damage allowance it is advantageous that quarry owners carry insurance against suits involving injuries caused by operation of motor and delivery trucks. With such insurance the insurance company is compelled to defend suits and pay damages awarded by the courts.

For instance, in *Gammill v. Mullins*, 188 S. W. (2d) 986, reported October, 1945, it was shown that the owner of a motor truck directed an employe to deliver merchandise. The employer clearly instructed the employe the *exact* route to take when delivering the merchandise. However, the employe failed to take this route and had a collision with a passenger automobile seriously injurying an occupant who sued the employer for damages.

The higher court considered all testimony and decided that the motor truck driver *negligently* caused the collision. Therefore, the higher court held the employer liable in heavy damages.

According to present laws this injured person could have sued the driver instead of the employer. However, employers usually are financially responsible whereas drivers usually are not. But in a case of this kind the employer can, if the driver is financially responsible, sue and recover from his driver the amount of damages he paid.

TRAFFIC News Digest

CENTRAL FREIGHT ASSOCIATION DOCKET

Docket 79424 (2) — Slag, crushed (the product of iron and steel furnaces) in bulk in open-top equipment, carload minimum weight 90 per cent. of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, to Elkins, W. Va., from Mingo Junction and Steubenville, O., 176 cents and Weirton, W. Va., 187 cents per net ton.

Docket 79429 (2)—Cement, common, hydraulic, masonry, mortar, natural or Portland, carload minimum weight 50,000 pounds, marked capacity of car to govern if less. Establish on, from Osborn, O., to Kingwood, W. Va., 21 cents.

Docket 7946 (2) — Limestone, agricultural, unburned, carload minimum weight 50,000 pounds. Establish on, from Woodville and Gibsonburg, O., to the following points:

	Net ton
Bloomington, Briggsdale, Broad Street, Cooks, Derby, Era, Green Lawn, Grove City, Madison Mills, Mt. Sterling, Orient, Palma, Pleasant Corners	$1.54
Coalton, Echo, Finney, Glen Roy, Ironton Junction, N. & W. Junction, Richmondale, Rittenours, Rupels, Terminal Junction, Vauces	1.98
Cuba, Fairport Harbor, Glendon, Melvin, Reesville, Sabina	1.65
Schooleys	2.31
Swift	1.76
Vigo	2.09

Docket 79427 (2) — Agricultural limestone, unburned, in open-top cars and agricultural limestone screenings, in open-top cars, minimum carload weight 90 per cent. of marked capacity of car, except that when car is loaded to full cubical capacity or visible capacity, actual weight will apply. Establish on, from Woodville and Gibsonburg, O., to following points:

	Net ton
Soldiers Home, Sandusky	$1.05
Wooster	1.16
Briggsdale, Broad Street, Cleveland, Cuyahoga Falls, Green Lawn, Willow	1.27
Alpha, Cooks, Derby, Era, Grove City, Kent, Mineral City, Mt. Sterling, Orient, Pleasant Corners	1.38
Bloomingburg	1.40
Glendon, Madison Mills, Melvin, N. & W. Junction, Reesville, Rittenours, Rupels, Sabina, Vauces, Wilmington	1.49
Fairport Harbor, Painesville, West Fairport	1.54
Bellaire, Byers Junction, Coalton, Cuba, Glen Roy, Ironton Junction, Richmondale, Swift, Vigo, West Wheeling	1.60
Beckett, Hayward, Marietta, Relief, Terminal Junction, Wellston	1.71
Echo, McClainville	1.82

Docket 79428 (2) — Agricultural limestone screenings, in open-top cars, minimum carload weight 90 per cent. of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Estab-

These Power Shovel Dipper Teeth *Lead a Double Life . . .*

Tooth costs on power shovel dippers can be substantially reduced by build-up-welding, as detailed in the above sketch. This method gives dipper teeth an extended service life at a cost less than that of new teeth.

Worn dipper teeth are quickly and economically repointed with Amsco Cast Repointer Bars, which are available in 31 sizes. Appropriate widths are torch cut from the bar, tacked on to the worn tooth, filled in, and finally hard surfaced with Amsco No. 459 or Economy Hardface.

Amsco Cast-to-Shape Dipper Tooth Repointers (another type) fit over worn teeth, are simple to apply, and are available in five styles and numerous sizes for application to practically all types and makes of dipper teeth.

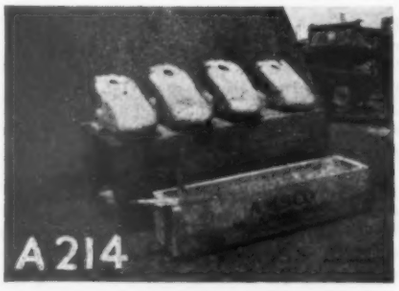
Illustrations A-214 and A-214-B show dull, inefficient dipper teeth which have been repointed at small cost with Amsco Repointer Bars and a little Amsco Nickel-Manganese Steel Rod.

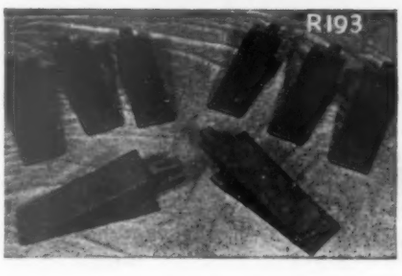
The service life of even new dipper teeth (See R193) is greatly lengthened by proper application of protective coatings of shock and wear resistant Amsco No. 459 Hard-Surfacing Rod or Economy Hardface.

Amsco Welding Products are also effecting important economies in the construction, mining and quarrying industries through such applications as the restoration of worn dipper lips and the reclamation and hard-surfacing of wearing parts of crushing, pulverizing and other heavy duty equipment.

Your inquiries will be welcome. For data on Amsco Dipper Teeth, write for Bulletin No. 641-S.

(Amsco Welding Products are produced and sold in Canada by Canadian Ramapo Iron Works, Inc., Niagara Falls, Ontario.)





AMSCO

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Chicago Heights, Ill.; New Castle, Del.; Denver, Colo.; Oakland, Calif.; Los Angeles, Calif.; St. Louis, Mo.

Offices In Principal Cities

AMERICAN MANGANESE STEEL DIVISION

CHICAGO HEIGHTS • ILLINOIS

AMERICAN Brake Shoe COMPANY

REDUCES 30″ STONE TO MINUS 1″ AT THE RATE OF 100 TONS PER HR. —WITH ONLY 80 HORSE POWER

Side View of No. 3030 Crusher with detachable Reciprocating Feeder operating in McCorkle Stone Company plant, Milroy, Indiana.

HOW IT WORKS — Impacting action of the two gigantic impellers, turning in opposite directions away from each other (see arrows) strike stone in mid-air as it is fed into crusher. Material is thrown upward against grate bars and rebounds until reduced to required size. It then passes around impellers and out through discharge openings. Impellers travel at adjustable speeds of 250 to 1000 rpm. The size of finished product is easily and quickly controlled. Manganese steel impeller bars have four striking faces and may be reversed when worn.

Write Dept. P2 for complete details.

Sensational results in limestone reduction are reported by the McCorkle Stone Company of Milroy, Indiana, with their recently installed New Holland Model 3030 Double Impeller Impact Crusher.

Handling run-of-the-quarry, feed stone ranging up to 30 inches, this New Holland machine is producing 40 tons per hour of minus 1-inch material with only 80 horsepower, and can, according to company officials, produce over 100 tons per hour.

In addition to increasing agstone output at least 100%, the new crusher produces such perfectly cubed material that the secondary crushers in the plant have considerably boosted capacities.

The New Holland unit is so flexible it can operate as a separate plant and so productive the McCorkle Stone Company is installing additional equipment to handle the increased capacity.

NEW HOLLAND MACHINE CO.

INDUSTRIAL DIVISION
NEW HOLLAND, PENNSYLVANIA

lish on, from Woodville and Gibsonburg, O., to the following:

	Net ton
Barberton, Canal Fulton, Clinton, Warwick	$1.27
Beach City	1.43
Black Fork, Carbondale, Finney, Schooleys, Kennard	1.71
Blue Bell, Buffalo, Byers, College Corner, Crescent, Cumberland, Roxbory, Senecaville, Stone Siding	1.60
Cairo	1.05
Crafton, Lima, Smith Road	1.10
Kimball, Plum Brook	.94
Lowellville	1.54
New Boston, Portsmouth, Sciotoville	1.82
Parma	1.16
Portage, Rudolph	.99
Valley Junction	1.38

CENTRAL FREIGHT ASSOCIATION DOCKET

Docket 79557 (1) — Stone, crushed, in bulk in open-top cars, carload minimum weight 90 per cent. of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply. Establish on, from Georgia, Ind., to Purcell, Decker, Hazleton, Ind., 105 cents; Miller, Patoka and Princeton, Ind., 110 cents; King, Ft. Branch, Haubstadt, Stacer, Ingle, Erskine, Wansford, Evansville, Owensville, Mounts, Cynthiana and Poseyville, Ind., 113 cents; Wadesville 121 cents; Solitude and Mt. Vernon, Ind., 127 cents per net ton.

ILLINOIS FREIGHT ASSOCIATION DOCKET

Docket IRC-511-9-E — Crushed stone, carload minimum weight 90 per cent. of marked capacity of car, except that when car is loaded to capacity, in which case the actual weight but not less than 40,000 pounds will apply, from Joliet, Ill., to Galesburg, Ill. Present: $1.39 net ton. Proposed: $1.19 net ton, subject to expiring date of June 27, 1946.

Docket IRC-511-349 — Sand and gravel, carload: To amend IFA Tariff 40-F by cancelling rates on sand and gravel, from and to points listed below:

	Rate	*Rate
ITEM 3800		
From Cairo, Ill.		
To Texas City, Ill.	$ .97	$ .99
ITEM 3850		
From Cairo, Ill.		
To Tamms, Ill.	.97	.99
From Grayville, Ill.		
Cairo, Mound City, Ill.	1.25	1.16
ITEM 3870		
From Cairo, Ill.		
To Brownsville, Carmi, Gossett, Norris City, Ill.	.97	.99

*Which will apply upon cancellation of rate in IFA 40-F.

Docket IRC 511-350 — Agricultural limestone, in open-top cars, carload minimum weight 90 per cent. of marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply, from Rivermines, Mo., to Alton R.R. stations in Illinois.

Rates in cents per net ton:

To (Representative)	Present	Proposed
Peoria, Ill.	...	150
Bloomington, Ill.	226	150
Springfield, Ill.	149	128
Clements, Ill.	169	123
Girard, Ill.	149	119
Nameoki, Ill.	130	85
Delhi, Ill.	150	106

ILLINOIS FREIGHT ASSOCIATION DOCKET

Docket IRC 511-351 — Stone, viz.: Stone, ground or pulverized, crushed or rough quarried; also strippings of stone quarries in straight or mixed carloads, minimum weight 90 per cent. of marked capacity of car, except that when cars are loaded to full cubical or visible capacity, actual weight will apply, but not less than 40,000 pounds to Morton, Ill. Present combination:

From	Proposed (net ton)
Krause, Ill.	$1.64
Valmeyer, Ill.	1.70
Prairie du Rocher, Ill.	1.75

Docket IRC 511-352 — Stone, viz.: stone, ground or pulverized, crushed or rough quarried; also strippings of stone quarries in straight or mixed carload, minimum weight 90 per cent. of marked capacity of car, except that when cars are loaded to full cubicle or visible capacity, actual weight will apply, from Prairie du Rocher, Ill., to Peoria, Ill. Present—comibnation; proposed—$1.51 per net ton.

Docket IRC 511-353 — Sand, viz.: blast, core, engine, filter, fire, furnace, foundry, glass, grinding, moulding, polishing, silica, carload minimum weight 90 per cent. of marked capacity of car, except that when car is loaded to full visible capacity, actual weight will apply, but not less than 40,000 pounds from Ottawa and Utica, Ill., to Zeigler, Ill. Present—class or combination; proposed—$1.79 net ton.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 38210 (1) — Gypsum, Highland and Murfreesboro, Ark., to Knoxville, Tenn. To establish rate of 460 cents per ton of 2,000 pounds on gypsum, crude or crushed (not ground), in bulk, carloads, minimum weight 80,000 pounds, from Highland and Murfreesboro, Ark., to Knoxville, Tenn.

Docket 38275 (1) — Stone, Little Rock, Ark., to Frenier and LaBranch, La. To establish rate of $2.05 per net ton on stone as described in Item 1810, subject to carload minimum weight as per Item 180 of SWL Tariff 162-S, I.C.C. 3614, from Little Rock, Ark., to Frenier and LaBranch, La., subject to expiration date one year from effective date of publication.

Docket 38318 (2) — Stone, rough quarried or sawed, Carthage, Joplin and Meyers, Mo., to Missouri and Iowa. To establish rates on stone, rough quarried, sawed, cut and dressed, also polished stone, from Carthage, Joplin and Meyers, Mo., to stations on C.R.I.&P. in Missouri and Iowa, the same as in effect at competitive points on other lines.

Docket 38332 (1) — Gypsum, crude or crushed, Bucher and Watonga, Okla., to Kingsport and Knoxville, Tenn. To amend item 2790, SWL Tariff 3-B, by establishing the following rates per ton of 2,000 pounds: To Kingsport from Bucher and Watonga, Okla., $5.80; to Knoxville from Bucher, Okla., $5.60; Watonga, Okla., $5.40.

TRUNK LINE ASSOCIATION DOCKET

Docket 43213 (supplement 2) (shippers) — Slate, crushed or ground; slate dust or slate flour in straight or mixed carloads, minimum weight 50,000 pounds to Harbor Junction Wharf, R.I., from Bangor and Pen Argyl, Pa., 20 cents; and from Advance-Gladhill, Pa., 23 cents per 100 pounds.

Docket 43255 (shippers) — Crude fire clay, carloads, minimum weight 60,000 pounds, from Lumber, Pa., to Johnstown, Pa., $1.72 per net ton, in lieu of current commodity rate of $2.15 per net ton

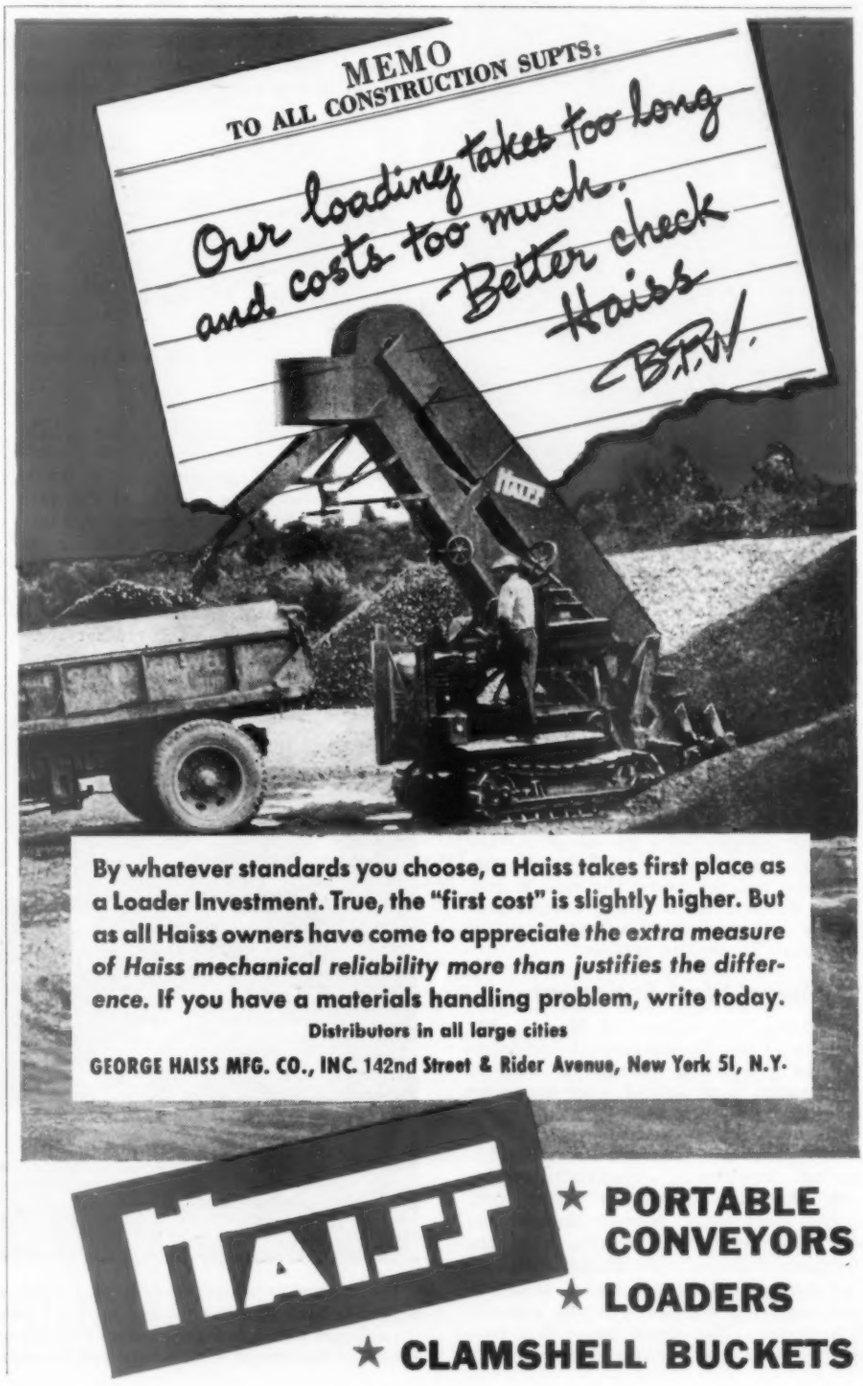
Docket 43289 (shippers) — Limestone, ground or pulverized, carloads, minimum weight 60,000 pounds from Stephens City, Orlando, Capon Road and Strasburg Junction, Va. (Strasburg Group), to Gouverneur, N.Y., $3.47 per net ton, in lieu of current sixth class rate of $6.80 per net ton.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket E-41-720 — Sand and gravel, straight or mixed carloads, minimum weight 90 per cent. of marked capacity of car, except that when cars are loaded to full visible capacity, actual weight will govern, but not less than 60,000 pounds. From Pueblo, Colo., to stations in Kansas. Proposed—to establish rates on basis of the I.C.C. 17000-11-A scale increased 10 per cent. (By shipper).

Docket E-41-721 — Limestone, Crushed or Ground, carload. From Bonne Terre, Marlo, Mosher, Rivermines and St. Genevieve, Mo., to Minneapolis, St. Paul and Minnesota Transfer, Minn., Wisconsin Rapids, Chippewa Falls, Eau Claire, Hutchens and Lake Hallie, Wis. Proposed —340 cents per net ton of 2,000 pounds.

The Pit and Quarry Directory will show you that a large and steadily-growing percentage of ready-mixed concrete plants are operated by aggregates producers.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TO ALL CONSTRUCTION SUPTS:
Our loading takes too long and costs too much. Better check Haiss
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By whatever standards you choose, a Haiss takes first place as a Loader Investment. True, the "first cost" is slightly higher. But as all Haiss owners have come to appreciate the extra measure of Haiss mechanical reliability more than justifies the difference. If you have a materials handling problem, write today.
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NEW MACHINERY and SUPPLIES

● Metallizing Gun

The Metallizing Engineering Company, Inc., of Long Island City, New York, has recently introduced the "Metco Y gun" for heavy-duty applications. This new metallizing gun operates on the same principle as the type "E" gun, which is recommended for applications requiring lightweight metallizing rod and slower operating speeds.

In applying metallizing wire rod to a surface, this gun uses an air turbine

Type Y gun for heavy-duty applications.

which draws the wire through an oxy-acetylene flame, after which compressed air is used to atomize the metal rod and deposit it in a thin coating on the surface under repair. Operating temperatures are low enough to prevent damaging equipment and yet the sprayed metal adheres to the worked-on surface to such a degree that the manufacturer recommends its use for resurfacing or building up worn bearings, shafts, or other friction surfaces. It is claimed that any type of metal, available in wire form, may be sprayed on any type of metal surface. The Y gun will spray up to 50 pounds of metal rod per hour; the type E gun, being smaller, has a slower deposit rate. Where excessive speed is necessary, the guns may be used in tandem.

● Mineral Wool Equipment

Whiting Corporation of Harvey, Ill., announces the development of equipment for the production of mineral wool in cooperation with several wool producers in order to achieve more efficient operation and a better product.

A typical installation includes the following mechanical materials-handling and charging equipment: apron conveyor, scale weigh hopper, transfer car and skip hoist. The cupola is of the corrugated water-jacket design, with special constructed hopper and a hydraulically-operated bell for effective material distribution. The steam boiler is a two-drum, water-tube type; and the air preheater unit is an integral part of the rear face of the boiler. Both boiler and preheater are designed for the utilization of the waste gases from the cupola to produce steam for blowing the wool.

Another popular unit is the combination of cupola and air preheater utilizing the waste gases, when the steam boiler is not part of the unit.

● Screening Feeder

The Syntron Co. of Homer City, Pa., has recently announced the addition of a new model to its line of Syntron "Vibra-Flow" feeders. Designated as "Model F-45," this screening-grizzly feeder is said to have a conveying capacity of 200 tons per hour. When taking

Conveying capacity of 200 tons per hour.

out material under 1½ inch, the grizzly can handle 65 tons per hour of run-of-mine clay. The movement or stroke is upward, forward and back, at the rate of 3,600 oscillations per minute. A rheostat control permits the operator to equalize material feed with crusher capacity.

A special control is also available which will cut off the feeder when crusher overload is indicated; the feeder resumes operation when input is back to normal. Maintenance and operating costs are claimed to be low, since the movement is confined to the vibrating spring bars which actuate the reciprocating trough.

● Four-Wheel Drive

The Dodge Division of the Chrysler Corporation announces its new "Power Wagon," a four-wheel drive, one-ton truck. Designed especially for off-the-highway operations, it is an adaptation

Designed for off-highway operations.

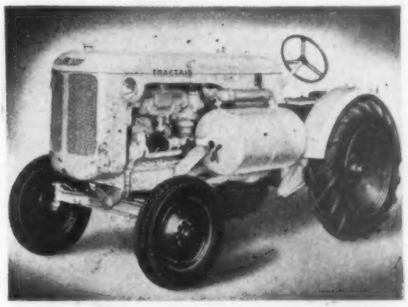
of the Dodge four-wheel drive military vehicle. It has a 94-hp. engine, four-speed transmission, two-speed transfer case, and a conventional closed cab for the driver. Other features of the Power Wagon are: an 8-foot steel body, 4½-feet wide, 22¼-inches high, with reinforced stake pockets; a double-drop frame with side rail reinforcements; a 126-inch wheelbase and a choice of 9.00 by 16 or 7.50 by 16, 8-ply tires. A maximum payload of 3,000 pounds is possible with the larger size tires.

A dual power take-off is available to deliver 536 r.p.m. at the tail shaft for operating other machinery, or to run a 9-inch belt pulley drive at a speed of 3,124 feet per minute. The power take-off also operates a front-mounted power winch of 7,500-pound capacity.

The illustration above shows a Mississippi wagon drawn by an International ID-9 tractor which has been modified for dirt hauling by the M-R-S Manufacturing Company. The tractor is equipped with a hydraulic system that brings the weight of the wagon to bear on the rear wheels of the tractor when a hard pull is encountered.

● Portable Compressor

The Le Roi Company of Milwaukee is offering to industry its latest portable air compressor unit known as the "Tractair," a 105-c.f.m. air compressor combined with a 35-mp., 4-wheel tractor. The 6-cylinder air-power section is said to employ the latest developments in industrial engine design. The cylinder



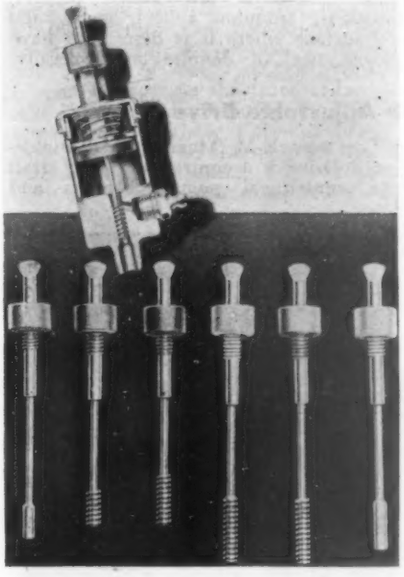
A 105 c.f.m. compressor and tractor unit.

block is one casting, with hardened removable wet cylinder sleeves and precision, shell-type bearings.

The tractor is a "Le Roi-Centaur" mounted on 4 pneumatic tires, and equipped with a 5-speed transmission. Power surplus of the engine is said to be adequate to permit tractor operations in addition to maintaining a full head of compressed air.

● New Lubricators

Manufacturing rights on "Gun-Fil" lubricators have been acquired by the Gray Company, Inc., of Minneapolis, according to a recent announcement. Designed in four sizes, with lubricant



Automatic lubrication dispensers.

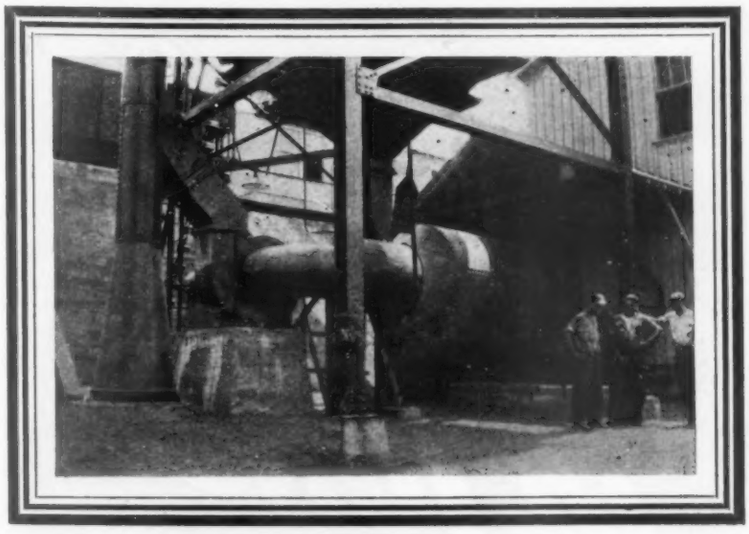
capacities ranging from ½ to 8 ounces, pressure filled Gun-Fil lubricators are said to dispense oil or grease automatically in a measured, uniform flow to a moving bearing, and to stop feeding lubricant when the bearing becomes motionless. Six interchangeable valves are available; each has a cap of a different color for identification. These valves are claimed to exert varying degrees of control of feed on greases of different densities.

● Pressure Switch

The Arotec Company of White Plains, New York, has developed three new, 8 ounce switches, for either pressure or vacuum up to 200 lbs., to be used in the control of liquids or gases that will not corrode brass. Typical applications are to control compressors, pumps and carbonated beverage equipment. It is rated at 10 amperes on 110-volt a.c. and is available in three designs. Type M-500 has an externally adjustable range with a fixed differential. Type M-600 can be reset manually from the outside; and type M-700 has an adjustable differential. Contact arrangement in the first two can be specified as normally-closed, normally-open, or double throw. The

Control switch operating on either air or vacuum.

third design is available only with normally-open contacts. Pressure connection is by means of a ⅛-in. pipe nipple.



PICTURE

of a "happy" lime plant
... the dryer, of course,
is a Ruggles-Coles (XF-10)

A half-century's experience building dryers for the stone products industries makes *Ruggles-Coles* the "grand old name" respected everywhere. Add to that the discharge feature of the *XF* series—dried material delivered *outside* the furnace—and you see why these Hardinge-built units are universally preferred for highest thermal efficiency with minimum expenditure of power. Sizes range from 36″ to 132″ in diameter, with shell lengths to suit.

HARDINGE COMPANY, INCORPORATED • YORK, PENN.
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

Consult the Hardinge Office nearest you.

● Electric Motors

With the addition of three new frame sizes, designated as B58-A,B,C, a complete line of alternating-current, squirrel-cage motors ranging from 1 to 200 horsepower, is now offered by the Crocker-Wheeler Division of the Joshua Hendy Iron Works of Ampere, New Jersey. Capable of a 40-degree C. rise, full-load continuous duty with 15 per cent. service factor, these motors are said to provide full protection against dripping liquids, falling metal chips and other foreign matter.

Sizes built in N.E.M.A. standardized frames, 203 to 326 inclusive, have no openings in the frame or shields above the horizontal center line. N.E.M.A. standardized frames 326 to 505, as well as the three recently added larger sizes, are basically the same in construction with the addition of two shielded, air exhaust openings in the upper half of the frame. The use of the company's patented centrifugal bearing seal in all ball-bearing machines is said to permit the use of softer grease for lubrication.

● Asphalt Paver

Hetherington & Berner, Inc., of Indianapolis, Indiana, have added the "Moto-paver" to their line of asphalt mixing equipment. This new plant is a self-contained continuous-mix machine approximately 8 feet wide, 22 feet long, and capable of traveling from 15 to 18 miles per hour under its own power. The Moto-paver may be regulated to pave from 4 to 50 feet per minute and has a capacity of from 100 to 120 tons per hour of any low cost or medium type bituminous mix. Among the features claimed for this new plant is a spreading and laying mechanism and a strike-off bar provided with leveling skids.

● Casting Process

The Stroh Process is a method employed by the Stroh Process Steel Company of Pittsburgh for casting alloy steel with soft steel in one solid piece. The

Alloy steel and soft steel cast in one piece.

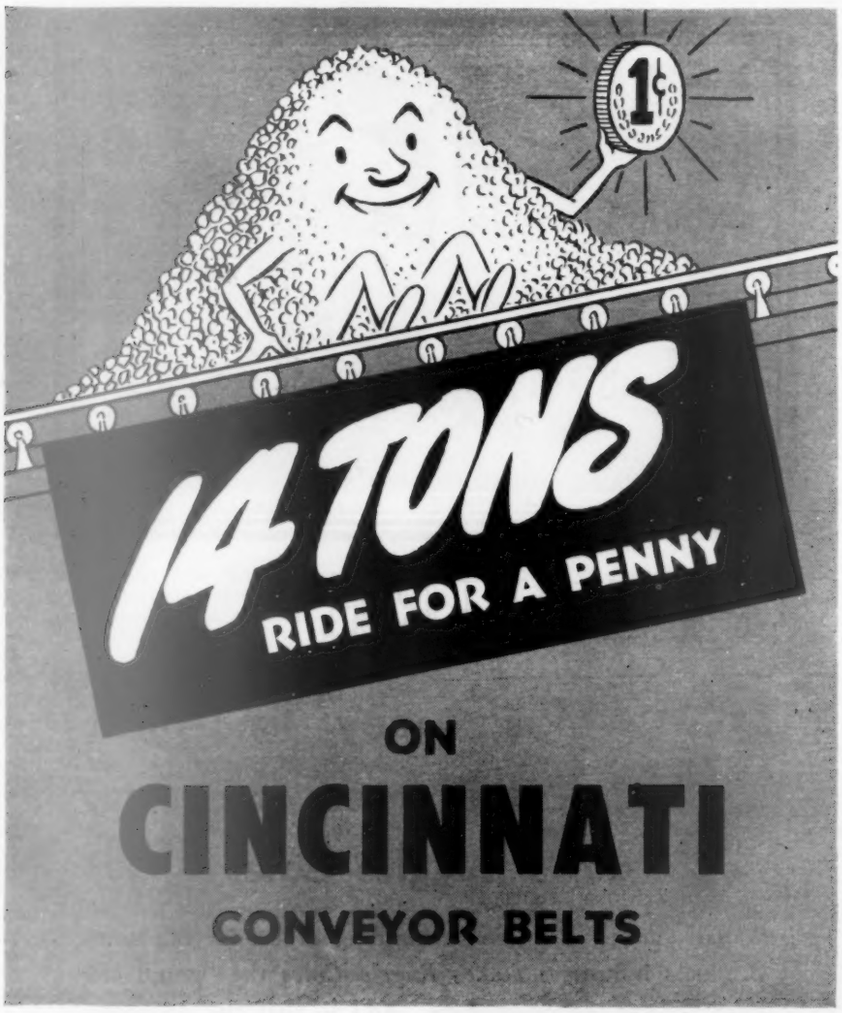
resultant casting has an alloy steel stratum upon the wearing surface, while the body is composed of any desired steel and is not effected in the casting process. The manufacturer states that the alloy will not come loose, spall, spread, or flow; and its depth or thickness, location, and hardness are controlled and varied according to the size of the piece and nature of the anticipated service. Reports from the company indicate that the Stroh Process finds application on mantles, concaves, pinions and gears of gyratory crushers, crusher jaw plates, sheaves, sprockets, trunnion rollers, gears, and any surface where it is desired to have alloyed steel of definite characteristics.

● Adjustable Drive

The new E-M Magnetic Adjustable-Speed Drive is a control for boiler draft fans, centrifugal pumps, blowers and

Magnetic control for electrical drives.

compressors, produced by the Electric Machinery Company of Minneapolis,



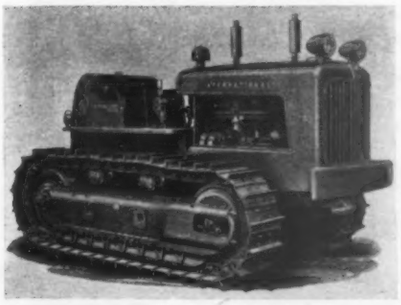
For greater efficiency in '46 . . . for LOW BELT COST Per Ton Conveyed . . . get Cincinnati Conveyor Belts on the job. 14 tons conveyed for a penny of belt cost is based on an actual record. Ask the Cincinnati man today for additional facts.

THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

Minnesota. Consisting of two operating parts, a rotating ring and a rotating magnet, this device is a compact, self-contained, electro magnetic torque transmitter used in combination with a constant speed a.-c. motor and an electronic controller to provide split-revolution speed control. Built in ratings of approximately 25 horsepower and larger at 1800 to 600 r.p.m., the Magnetic Drive is available in several forms to meet the requirements of new or existing installations. It is said to provide substantial power savings by operating the boiler draft fans at reduced fan speed for partial fan output thereby eliminating the need for damper or inlet vane control. The device can be used in combination with synchronous motors to provide power factor correction.

● Diesel Tractor

A new diesel crawler-tractor is the 130-drawbar-horsepower range is announced by the International Harvester Company of Chicago. This tractor, the



A 130-drawbar-horsepower crawler-tractor.

TD-24, weighs approximately 35,000 pounds, is the largest ever built by the company, and is said to provide more comfort and convenience for operation by the operator. A balance of horsepower-to-weight, a new type of steering, and the use of special sealing and anti-friction bearings in the track rollers are additional features of the TD-24. An International 6-cylinder full diesel engine is employed with an International built-in gasoline starting system. The tractor has eight speeds ranging from 1.6 to 7.8 miles per hour.

● Interlocking Belt Joint

The B. F. Goodrich Company of Akron, Ohio, introduces its "Plylock" method of making rubber belts endless.

Method of interlocking plies.

In this method of joining belt sections, the ends of the plies are interlocked and counter-sunk beneath the surface of the

PULVERIZERS

Hundreds of Installations . . Use Bradley Pulverizers

for the reduction of

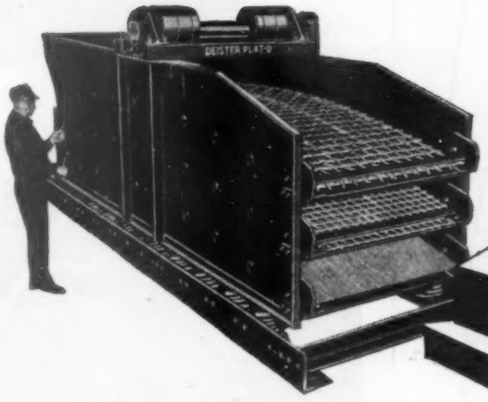
AGRICULTURAL LIMESTONE
Cement Materials and all
Dry, Non-Metallic Minerals

CAPACITIES: 1 TO 50 TONS PER HOUR
FINENESSES: 20 TO 350 MESH

BRADLEY PULVERIZER CO.

ALLENTOWN, PENNA.

45 Tons -in seven minutes



PLAT-O by DEISTER

THIS rugged 5′ x 12′ Plat-O Vibrating Screen averages better than 270 tons of virgin feed, *plus* 30 tons of circulating load, every hour . . . handles a 45-ton load of rough feed straight from the pit in exactly seven minutes . . . is doing a tough job with characteristic Plat-O speed, economy and dependability.

Installed as part of the modernization program at Kickapoo Sand and Gravel Company at Peru, Indiana, it helped Kickapoo *increase production 400%* in one season . . . from 5 railroad cars to 20 or more cars a day. It sized 150,000 tons without a screen change . . . has required no service other than quick, easy day-to-day maintenance.

This is the kind of results operators everywhere report with Plat-O Vibrating Screens . . . results that mean *better sizing — cheaper.* Why not let Deister Machine Company Engineers show how you too, can boost profits and production with Plat-O Vibrating Screens?

DEISTER MACHINE COMPANY • Ft. Wayne 4, Ind.

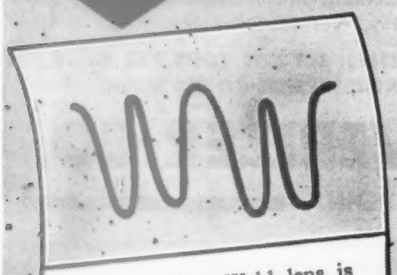
belt by the removal of a small patch of the fabric in the second ply. The resulting depression is then filled in with a reinforced rubber cushion and vulcanized. The ply ends are thus virtually locked in position and protected from wear, deterioration, and windage. They are also said to be of uniform thickness. Vulcanizers are available at the Goodrich Company for plants intending to do their own joining.

● Safety Glove

The Pioneer Rubber Company of Willard, Ohio, has designed a Stanzoil neoprene-coated canvas glove for industrial use. The safety-red color serves as a warning that the wearer's hands are near moving machnery. Oil- and acid-resistant, they are made of milled neoprene, which is claimed to provide a tough coating for resistance to abrasion

A neoprene-coated safety glove.

Get This Assurance of Welding Eye Protection



Every Willson-Weld lens is marked like this. Purpose: to show that it meets highest Federal specifications. Reduces intensity of visible light, filters out harmful ultra-violet and infra-red rays.

Clear cover lenses to protect green Willson-Weld lenses from pitting. Both lenses easily replaceable. Welding goggles fit comfortably over ordinary correction spectacles.

Style CW-60

Shade number — determined by individual photometer test —indicates density and thickness of each lens. Simplifies selection. Lenses easily interchanged for different types of welding.

For help with your welding eye-protection problems, consult your Willson distributor or write for further information.

GOGGLES • RESPIRATORS • GAS MASKS • HELMETS

DOUBLE WILLSON

PRODUCTS INCORPORATED

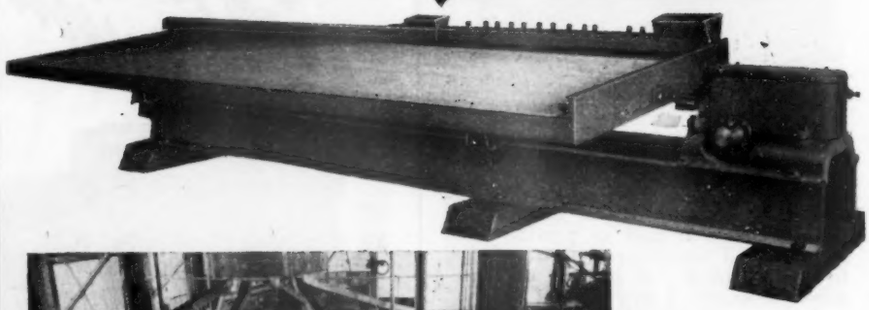
Established 1870

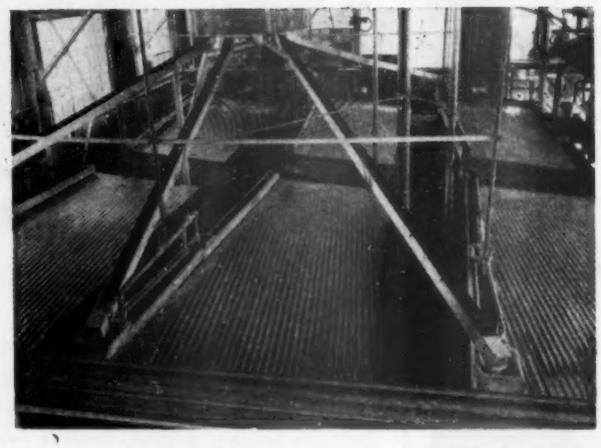
102 THORN STREET • READING, PA., U. S. A.

WILFLEY TABLES

for Closer Separation in

PHOSPHATE WASHING





Left: Six of twelve No. 6 Wilfley Tables used in a modern Florida Phosphate Fertilizer Plant.

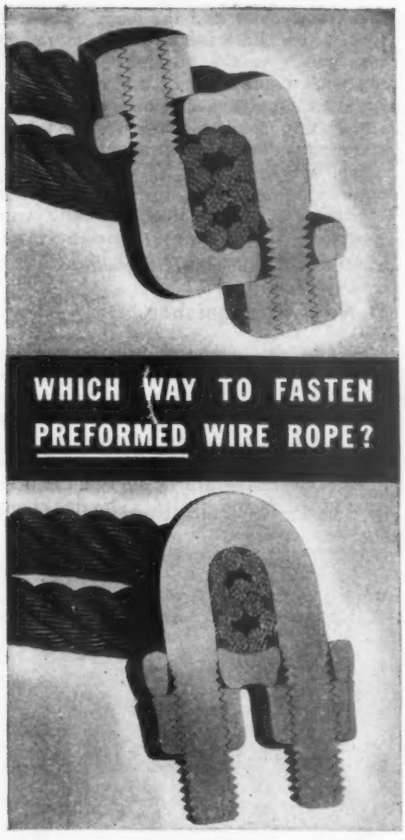
Genuine Wilfley Tables provide an efficient low cost means of washing in the production of soluble phosphates for soil fertilizers. The above photo shows half of the table section in Phosphate Mining Company's plant at Bartow, Fla., using Wilfley Tables. Inquiries on the use of Wilfley tables for this purpose will be answered promptly.

Massco-Fahrenwald Flotation Machines; Marcy Ball, Rod and Tube Mills Rock Bit Grinders; Density Controllers; Rubber Pinch Valves.

DENVER
SALT LAKE CITY
EL PASO
NEW YORK CITY

The Mine & Smelter Supply Co.

CANADIAN VICKERS, LTD.
MONTREAL
W. R. JUDSON
SANTIAGO, LIMA



The cross-section views show what happens to wire rope. In Fig. 1, Laughlin's "Fist-Grip" Safety Clip holds the 5/8" rope with hardly any distortion (note hemp centers). In Fig. 2, hemp center under U shows how rope is squeezed and flattened by U-bolt's smaller bearing area and "Finger-Pinch". Both were tightened to same tension by torque-indicating wrench.

Here's Why "Fist-Grip" Clips Work Better

Laughlin Safety Clips have identical saddles, flat sides; hold rope firmly without crushing. Saddles fit snugly against "live" and "dead" ends. Fewer clips deliver full rope power. The only clips with drop-forged bolts. Test them, for your rope's sake.

Distributed through mill, mine and oil field supply houses. Write for catalog. Dept. 3, The Thomas Laughlin Co., Portland 6, Maine.

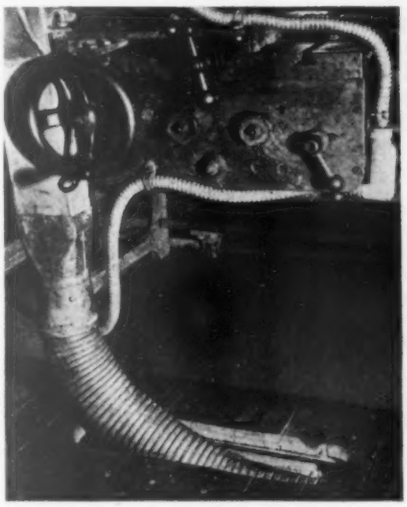
LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

and other wear hazards. The fingers are curved to facilitate gripping, and the wrist style may be had in either the knit or gauntlet type. The gloves are manufactured in one standard size.

● Corrugated Duct

Wartime research on gas masks by the United States Rubber Company of New York City, has led to the development of a flexible, corrugated duct made of fabric, rubber and plastics, which is rec-

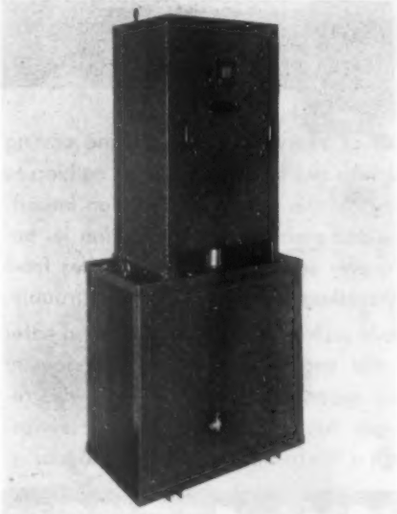


Flexible conveyor made from asbestos fabrics.

ommended for use in conveying air, dust, fumes, and abrasive materials. According to the manufacturer, the duct, known as "Multi-Flex," may be subjected to severe twisting and to temperatures ranging from —70 to 350 degrees F. without breaking down. They are made of glass and asbestos fabrics impregnated with synthetic rubber and plastics.

● Power Factor Regulator

The Modern Control Equipment Company of Chicago is introducing a power factor regulator employing the Haug Sys-



Increases power factor or reduces cost.

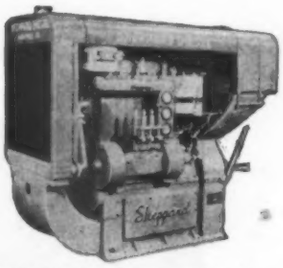
tem, which is said to increase the power factor of a power plant or to reduce the cost in obtaining a specified power output. This is accomplished by placing the regulator between the final distribu-

WHERE LIGHTS BURN AND WHEELS TURN...

DIESEL'S the Power... *Sheppard's* the Diesel!

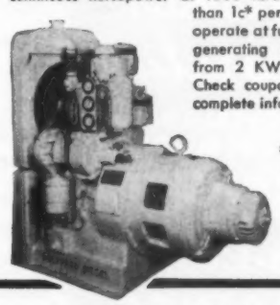
When power costs become an important item of operating expense, it's time to investigate the economy of a Diesel engine.

Sheppard Diesels have *proved* their economy of operation by reducing power costs in hundreds of installations... *frequently as much as 65%!* If *your* answer to the rising cost of labor and materials is the reduction of power bills—remember, *Diesel's the power . . . Sheppard's the Diesel!*



Model 6A-1 3-cylinder Sheppard Diesel power unit develops 25 continuous horsepower at 1200 R.P.M. Delivered complete ... ready to run ... including power take-off and clutch. Costs about 96c* to operate at full load for an 8-hour day. Other models ranging from 3¾ H.P. to 56 H.P. The coupon below will bring complete information on the power unit suited to your requirements.

Sheppard 5 KW generating set is powered by a Model 7 1-cylinder Sheppard Diesel developing 8 continuous horsepower at 1200 R.P.M. Costs less than 1c* per KW hour to operate at full load. Other generating sets ranging from 2 KW to 36 KW. Check coupon below for complete information.



*Using 8c per gal. fuel oil

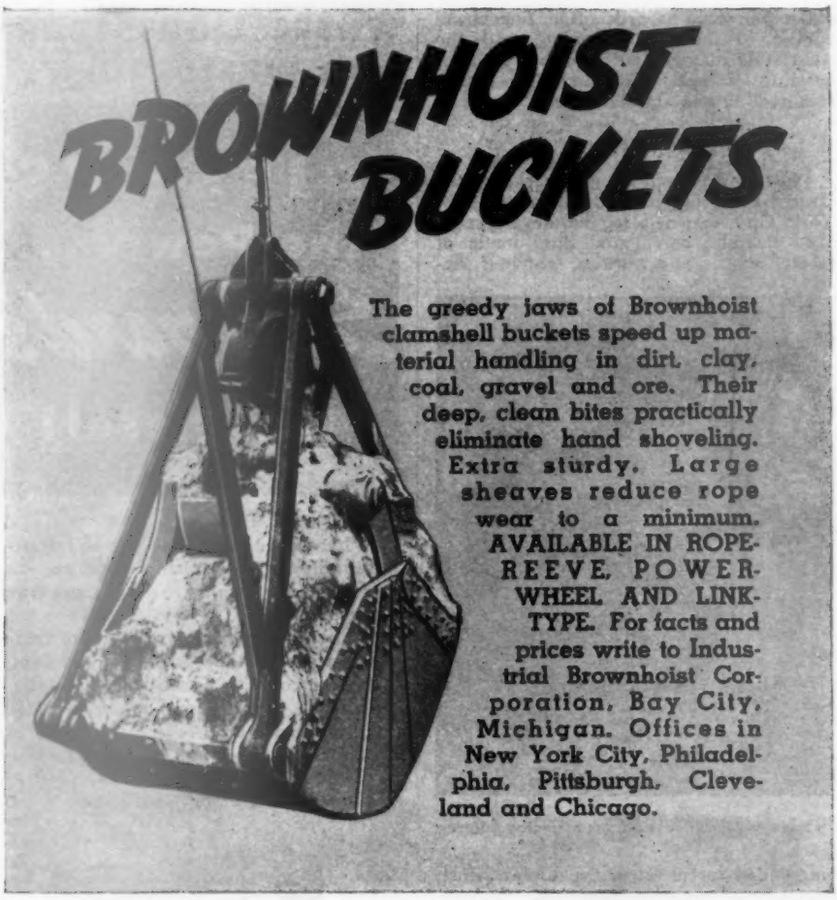
R. H. SHEPPARD COMPANY, INC.
13 MIDDLE ST., HANOVER, PA.

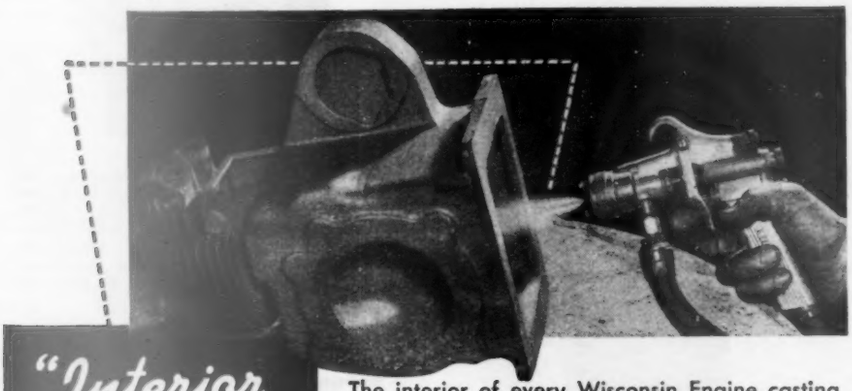
Forward complete information on Sheppard Diesel ——Power Units ——Generating Sets.

*Name*_____

*Address*_____

*Power Unit H.P.*____ *Generator Capacity*____


BROWNHOIST
BUCKETS
The greedy jaws of Brownhoist clamshell buckets speed up material handling in dirt, clay, coal, gravel and ore. Their deep, clean bites practically eliminate hand shoveling. Extra sturdy. Large sheaves reduce rope wear to a minimum. AVAILABLE IN ROPE-REEVE, POWER-WHEEL AND LINK-TYPE. For facts and prices write to Industrial Brownhoist Corporation, Bay City, Michigan. Offices in New York City, Philadelphia, Pittsburgh, Cleveland and Chicago.



"Interior Decorating"
ISN'T OVERLOOKED, EITHER, IN BUILDING
WISCONSIN
Air-Cooled
ENGINES

The interior of every Wisconsin Engine casting is sprayed with red sealer. This adds nothing to the "beauty" of the engine but it IS an important service and maintenance precaution — because it forever seals any loose particles from entering the oiling system and causing trouble. Small details such as this are important in safeguarding the engine user against equipment layups and expense which could otherwise result. You get dependable, heavy-duty serviceability when a Wisconsin Engine is on the job.

Most H.P. per pound
WISCONSIN MOTOR
Corporation
MILWAUKEE 14, WISCONSIN, U. S. A.
World's Largest Builders of Heavy-Duty Air-Cooled Engines

tion transformer and the load. The current, from the generator to the regulator, which would normally comprise a magnetic component or loss of power, is confined to power current only, thereby eliminating the power loss due to the magnetization of the current. Simplicity of design, small in size and using no moving parts are additional features. Units are available for operating volts from 200 to 2,400 volts, single and three-phase, with ratings from 15 to 120 kv.a.

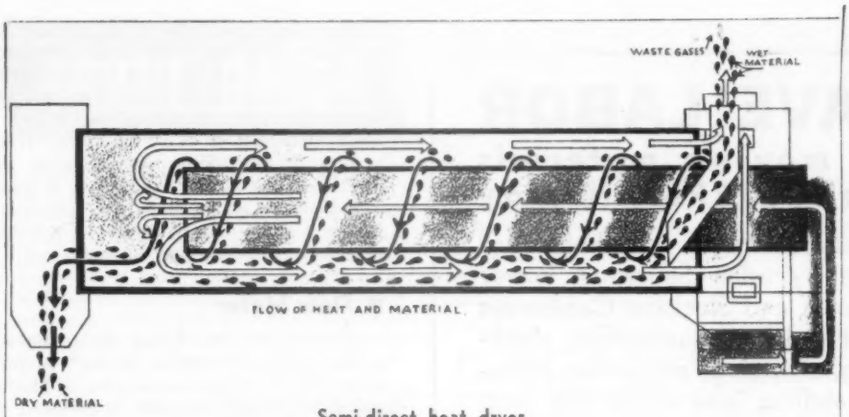
● New Extinguisher

A new dry chemical fire extinguisher known as "All-Out" is announced by the All-Out Fire Extinguisher Division of Pressurelube, Inc., of New York City. This fire-fighting device is said to perform effectively under all climatic conditions, in extreme temperatures, and in the presence of winds and drafts. The dry chemical is ejected, under pressure, in a flat stream that separates the flame from the burning material by forming a dense, fire-smothering cloud over the flaming area. Effective up to a distance of 18 feet, All-Out is claimed to create an insulating barrier between the operator and the flame. The manufacturer claims that All-Out forms no toxic gases; that it is non-abrasive, harmless to a finished surface and easily removed with a brush. It is also an insulator. Refills require no special tools or equipment.

Dry chemical fire extinguisher.

● Segregation Eliminator

The Blaw-Knox Company of Pittsburgh, Pennsylvania, has added a segregation eliminator to its line which is said to prevent the tendency of coarse aggregates to segregate as they are discharged from overhead storage bins. The eliminator can be installed in each of the coarse aggregate compartments of a bin and is adjustable and automatic in its operation. While the storage bin is being filled with gravel, slag, and crushed stone, this device is claimed to correct whatever segregation may take place, and to deliver a uniformly graded aggregate from the discharge gate at the bottom of the compartment.



Semi-direct heat dryer.

● Rotary Dryer

Designed to cope with various problems in drying methods employed with materials germane to the nonmetallic minerals industries, the rotary dryers of the L. R. Christie Co. of New York feature the semi-direct heat principle. The dryer is described by the manufacturer as a type of "rotary retort" which virtually eliminates all air-flow through the material and hence avoids picking up dust.

Spurred by the demands of wartime production, the Christie company developed the semi-direct heat principle to effect greater economy in man-hours, fuel and maintenance. This system reportedly has been applied with equally satisfactory results to high-temperature and low-temperature operations. (When high temperature is objectionable, steam or other heat coils are used in place of the furnace, to secure temperature control.)

Elimination of radiation losses and overheating of the material are said to bring about material savings. As seen in the accompanying diagram, the furnace gases pass first around a short section of the outer shell at the wet end, through nozzles to the central flue, which they traverse to the dry end, and then enter the space between the shells and return to the wet end, flowing in counter direction to the material and being withdrawn with the moisture by an exhaust fan.

● Industrial Wheel

The "Grizzly Tread-Lock Wheel" is now available for new equipment and replacements, according to an announcement made by the Thermoid-Grizzly Wheel Sales Division at Chicago. Developed for, and successfully employed by the military services, the Grizzly wheel is said to have many features and applications which make it useful in industry.

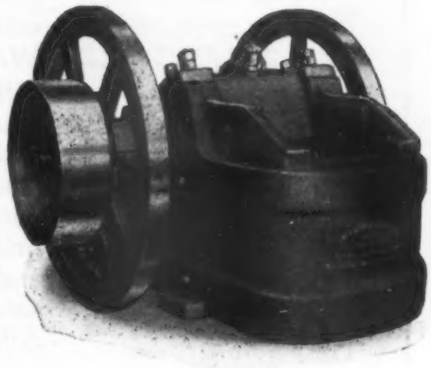
Designed to protect rubber tires.

"Sealed-in lubrication", which provides automatic lubrication of the precision bearings, "breather" holes in the casting, which permits expansion and contraction of the rubber tire, and a cut-resistant tread are features mentioned by the manufacturer. The Grizzly is available in standard sizes of 6, 8, 10 and 12 inches, and special sizes may be obtained to fit all standard axles.

● Steel Electrode

"Harcast", a mild steel electrode for welding and repairing cast iron, is a recent development of the Harnischfeger Corporation of Milwaukee. It is claimed

FARREL BACON
CRUSHERS
Complete plants designed and equipped, including Screens, Elevators and Conveyors. Machinery for Mines and Rock Quarries, Sand and Gravel Plants. Engineering Service.



FARREL-BACON
ANSONIA, CONNECTICUT

The only help you need to make belt repairs FAST

BRISTOL'S
BELT LACING
for rubber or woven conveyor belts up to 13/16" thick. Order from your distributor. And write for Bulletin 730.

The BRISTOL Company
MILL SUPPLY DIVISION
137 BRISTOL ROAD, WATERBURY 91, CONN. *Distributors Everywhere*

Above is a typical small Sauerman Scraper installation producing 40 to 50 cu. yd. an hour for a portable screening plant. Simple and dependable.

This Sauerman Slackline Cableway is moving gravel from a wet pit 90 ft. deep. It delivers material direct to screens at total cost of only few cents a cubic yard.

SAVE LABOR
by moving materials the SAUERMAN Way

Great savings in man-hours are made by using Sauerman Power Scrapers and Slackline Cableways in pit and bank excavation, stockpiling, stripping, and other material-handling jobs where the long reach of these machines can be utilized to advantage.

With one man at the controls, and with small expenditure of power, a Sauerman machine will dig, haul and automatically dump, a large hourly tonnage of any class of earth or bulk material. Moreover, price of equipment is moderate and upkeep is simple. Write for catalog. It pictures and describes different installations.

SAUERMAN BROS., INC.
534 S. Clinton St., Chicago 7, Illinois

Power Scrapers & Cableways SINCE 1909

KILN END
Burn-Outs
KILL PROFITS

PYRASTEEL
KILN ENDS

. . . prevent costly burn-outs and shutdowns that result in serious loss of production.

Install PYRASTEEL Segmental Kiln Ends at *both* the discharge and feed ends of your cement kilns, and be assured of long, dependable, and economical service.

Write for Bulletin of This Heat-Resisting Alloy

Showing discharge end of cement kiln fitted with PYRASTEEL Segmental Kiln Ends.

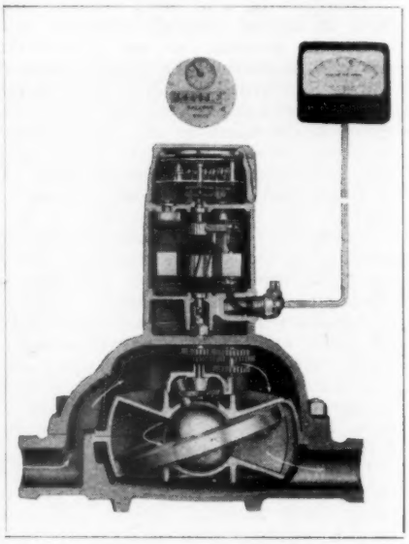
Unit segments are easy to install or replace.

CHICAGO STEEL FOUNDRY COMPANY
KEDZIE AVE & 37TH ST.
PYRASTEEL for high temperatures
CHICAGO 32, ILL.
Makers of Alloy Steel for 30 Years
EVANSTEEL for strength

to fuse satisfactorily with either mild or medium steel, and to be well suited for joining cast iron with other types of steel. With a yield point of 50,000 pounds per square inch, the deposited metal has a tensile strength of 60,000 pounds. High quality of machining is possible as the dilution effect at the fusion zone is minimized through low amperage operation. Either a.-c. or d.-c. (straight or reversed polarity) machines may be used.

● Flow Meter

A volumetric measuring device known as the "Hays Veriflow Meter" is presented by the Hays Corporation of Michigan City, Ind. The unit is designed to measure the flow of any liquid which is free of abrasive material or solids in suspension. An instantaneous rate-of-flow



Automatic meter and recorder of material flow.

meter, calibrated in any specified unit of measure, may be used, or a recording type of meter may be used when a record of the volume of flow is desired. Both meters may be employed simultaneously if required. Each installation requires a specific meter determined by the type of liquid to be measured, pressure, temperature, and approximate rate of flow.

● Portable Conveyor

For materials handling jobs where height is a problem, the American Conveyor Company of Chicago, Illinois, announces "High-Boy," the latest addition to its line of portable electric conveyors. High-Boy is built to fit any machine in the American Conveyor line in 8 and 12-inch widths, and in 13 and 20-foot lengths. With the new High-Boy it is possible, according to the manufacturer, to raise the conveyors over 12 feet, making it easy to work stock piles in yards, unload and load materials from box car to bin or loading platform and stack many kinds of bulk and package material. Features claimed for the High-Boy include ease of attaching and detaching, T iron frame, safety stop, sprocket-and-roller chain winch, pneumatic tires, roller bearings, and ability to carry a load of 1,500 lbs.

TRADE NOTES

Ralph A. Powers has been named engineer-in-charge of electronic engineering at the Allis-Chalmers Manufacturing Company. Mr. Powers, who holds numerous patents on electronic devices and has prepared more than a score of technical papers for trade groups and publications, formerly was associated with the Bundy Tubing Company of Detroit. He succeeds J. M. Cage, who has resigned.

J. B. Terbell

Joseph B. Terbell, affiliated with various divisions of American Brake Shoe Company in sales and executive capacities since 1928, has been appointed executive vice-president of Brake Shoe's American Manganese Steel Division. In 1940 he was promoted from a district sales manager's position to a vice-presidency with American Manganese Steel. Three years later he was named first vice-president.

George R. Christie of the Socony-Vacuum Oil Company, Inc., was elected president and chairman of the executive committee of the Asphalt Institute at the organization's annual meeting in New York City on December 5. Other officers appointed were: B. E. Gray, re-elected general manager and chief engineer; Herbert Spencer, secretary; F. V. Widger, treasurer.

Stephen Flam, manufacturer of the Flam Challenger line of vibration block tile machines for the concrete products industry, is continuing the expansion program at his plant and machine shop at Van Nuys, California. An addition to the original building there was erected early in 1945, and construction has been begun on another unit. The company reported a creditable sales record of block machines for 1945.

L. S. Wilcoxson, vice-president of the Babcock & Wilcox Company of New York, recently was put in charge of the firm's research and development projects.

The Eighmy Equipment Company has announced the removal of its offices to 526 West State Street, Rockford, Illinois, on December 1, 1945. The move was the first step toward transferring the company's Construction Equipment Division from Rochelle, Illinois, to Rockford.

The Fuller Company of Catasauqua, Pennsylvania, has recently changed the location of its Chicago district office from the Marquette Building at 140 South Dearborn Street to 120 South LaSalle Street. C. C. Kaesemeyer is in charge

J. S. Clinger has been named product manager of the portable compressor section of Worthington-Ransome, Construction Equipment Division. A member of Worthington's staff since 1937, Mr. Clinger has until recently been a representative in Denver for the Blue Brute line.

L. H. Gegenheimer will return to his pre-war position as sales engineer in the industrial division of the Timken Roller Bearing Company, after a four-year leave of absence in Washington, D. C.

Iron & Steel Products, Inc., of Chicago announces two staff appointments. James (Jim) C. Magee has been named manager of the machinery department, with headquarters in the general offices in Chicago.

Charles (Doc) Marshall has become sales engineer. He is also stationed at Chicago.

James L. Geddes of the governmental sales division of Caterpillar Tractor Company has been appointed representative in charge of the company's Washington, D. C., office.

Mr. Geddes joined the treasury department of Caterpillar in 1942 and was placed in charge of the governmental section, later becoming Eastern Division credit manager.

Oliver United Filters, Inc., announces with deep regret the sudden death in Chicago on August 18 of Philip H. Noyes, one of its most valued engineers.

Two major promotions have been announced by the American Steel & Wire Company in the Chicago sales department. H. A. Squibbs has been made assistant sales vice-president; and C. T. Gilchrist was named assistant general sales manager for Chicago, a post formerly held by Mr. Squibbs.

W. M. Walworth

W. M. Walworth, former acting chief engineer with the Mack Manufacturing Corporation, has been elected vice-president and chief engineer by the board of directors.

Mr. Walworth joined Mack in 1939 after 12 years with Reo Motors, Inc. His headquarters will be in the company's general offices in New York City.

William S. Elliott, vice-president and general counsel of the International Harvester Company, and Arnold B. Keller, vice-president and treasurer, have resigned from their offices, according to an announcement by Fowler McCormick, president. Mr. Elliott, who has been with the company for 34 years, will be succeeded as general counsel by Forest D. Siefkin, vice-president in charge of industrial relations; and Mr. Keller's duties as treasurer will be assumed by William R. Odell, Jr. Mr. Keller had been associated with International for 33 years. Both retiring officers will remain as directors and senior consultants.

E. J. Schwanhausser, vice-president of Worthington Pump & Machinery Corporation, was elected president of the Diesel Engine Manufacturers Association at the association's annual meeting, held December 11 in Chicago. Gordon Lefebvre, president of Cooper-Bessemer Corporation and J. E. Peterson, vice-president of General Machinery Corporation, were elected vice-presidents.

Reelected as treasurer was Robert H. Morse, Jr., vice-president and general manager of Fairbanks, Morse & Co. Harvey T. Hill, executive director of the association, was likewise reelected to serve through 1946.

New directors are A. W. McKinney, vice-president of National Supply Co., and G. F. Twist, vice-president and general manager of Atlas Imperial Diesel Engine Co. Continuing on the board of directors are George W. Codrington, vice-president of General Motors Corporation; Charles E. Brinley, chairman of the board, Baldwin Locomotive Works; Robert E. Friend, president of Nordberg Manufacturing Co.; Norris H. Schwenk, president of Busch-Sulzer Brothers Diesel Engine Co.; Mr. Schwanhausser, Mr. Morse and Mr. Lefebvre.

Robins Conveyors Inc., has announced that A. P. De Vita of East Paterson, New Jersey, has joined the equipment sales staff, where he will specialize in the company's Floatex Shakeout for the foundry industry.

Robins also announced a promotion in the equipment sales department. Edwin M. Perrin, advertising manager since 1942, was promoted to the position of assistant manager of equipment sales.

Louis W. Woolfolk has recently become sales engineer of the Industrial Division of the New Holland Machine Company, manufacturers of stone-crushing and agricultural machinery.

Mr. Woolfolk has been associated with the Inland Steel Company and the Shell Oil Company's foreign engineering department. His work as geophysicist in Venezuela and his travels in other South American Countries were terminated by World War II. He later became associated with the Universal Engineering Corporation of Cedar Rapids, Iowa, and was assistant chief engineer of the Road Machinery Division at the time of his transfer to New Holland.

Fred W. Bush has been promoted to assistant manager of the electrical department of the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., according to an announcement by R. S. Fleshiem, manager of the company's electrical department.

Another appointment was that of Frederick C. Ludington, who was named manager of the firm's switchgear and control sections.

Charles F. Kettering, General Motors vice-president; Dr. Boris A. Bakhmeteff, professor of civil engineering at Columbia university; and Charles H. Purcell, director of California's department of public works, were recently honored by the American Society of Civil Engineers. The three men were voted honorary membership in the society for outstanding service in their respective fields.

TRIPLE CHECK PRODUCTION
✓ Automatically . . . .
✓ Accurately . . . . .
✓ Economically . . . . .
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WEIGHTOMETER

This is the modern, time-proven method of continuous weighing and recording of raw materials handled by belt conveyors. For precision and economy, specify MERRICK Weightometers in your production line. Write for Catalog.

MERRICK SCALE MFG. CO.
Passaic, New Jersey

G. S. McKenty

Fifty-seven exclusive LeTourneau distributors now comprise the domestic sales organization recently announced as complete by R. G. LeTourneau, Inc., of Peoria, Ill. Providing fully adequate sales, service and parts facilities, the distributing firms serve earthmoving and construction owners and users throughout the United States and Canada, with representation in 91 cities.

"Our newly completed organization of exclusive distributors is really one to be proud of," asserts G. S. McKenty, Le Tourneau general sales manager. "They have assured this firm an extremely promising future, having already produced sufficient business to keep all of our domestic and export plants in full production through 1946."

This newly-formed sales structure was developed under a sign-up program inaugurated in February, 1944. Selected from among the country's outstanding equipment dealers in each locality, the individual distributing companies were given comprehensive operation instructions—a factory education that standardized methods and procedures.

A graphic training presentation, "The LeTourneau Story," was given by factory representatives at each distributor's showroom. Intensive, specialized training courses were given sales, service and parts personnel at factory training schools. From the various special schools, 417 men have been graduated: Sales—189; Service—179; Parts Schools—49.

The firms are divided into three areas --Eastern, Central and Western—and are kept in constant touch with the factory by LeTourneau district sales representatives and servicemen. Factory parts and credit facilities are provided.

A. J. Quinn, newly elected president of Brooks Equipment Corporation, designers and manufacturers of flexible equipment, announces the consolidation of the company's executive and sales offices and production facilities and removal to new headquarters at Hoboken, N. J. The release of many new industrial and marine products and the plan to organize jobbers, distributors and exporters as sales outlets required the larger quarters and the close supervision essential to the expansion program.

A. T. Marchuk

Athey Products Corporation of Chicago has announced the appointment of A. T. Marchuk as production manager.

Mr. Marchuk, who joined the Athey organization in 1936, served in the shipping and receiving department as traffic manager and as supervisor of the order department; in the sales department he was controller of sales and production schedules.

F. W. Ayers

F. W. Ayers, who was formerly on the sales-service force of the Bemis Brothers Bag Company at Peoria, Illinois, has been transferred to the Bemis plant at San Francisco.

Mr. Ayers will carry on sales promotion work on multi-wall paper bags.

E. R. Galvin

E. R. Galvin, formerly president of the Tyson Bearing Corporation of Massillon, O., has been named executive vice-president, general sales manager and a director of LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa, manufacturers of bulldozers, scrapers and other earthmoving equipment. Mr. Galvin will assume his new duties with LaPlant-Choate on March 1. S. L. Myers, who has been vice-president and general sales manager during the past year will become vice-president and export sales manager, while Jay M. Fetters, former export manager, will become manager of foreign development.

The LOAD LUGGER Trade Mark Reg.
Pays Off
IN EXTRA ECONOMIES

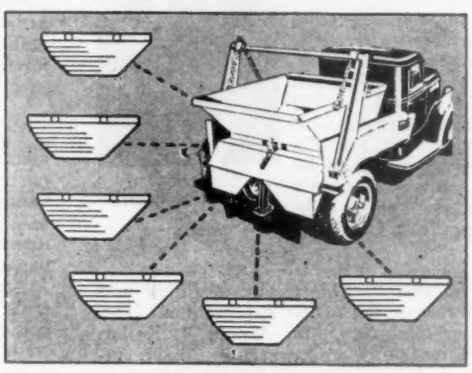
SPEEDIER . . .
Only 15 seconds for loading or dumping.

SIMPLER . . .
Hydraulic hoist. No shifting of load.

STURDIER . . .
Heavy construction and few parts. Low upkeep.

Write for Bulletin

Distributors in all Principal Cities



Here's the solution to your materials handling problem in 1946. Insures faster production at less cost. Saves time, reduces maintenance, conserves labor. Unit mounts on any chassis. Use 5 to 10 dump buckets per job.

103 Davenport Road, Knoxville 8, Tenn.

Brooks EQUIPMENT AND MFG. CO.

The Crocker-Wheeler Division of Joshua Hendy Iron Works, Ampere, N. J., has announced the appointment of I. C. Smith to the position of chief engineer of the company.

I. C. Smith

Mr. Smith has had wide experience in both the electrical and mechanical aspects of electric motor design. Prior to joining Crocker-Wheeler in May of 1942 as a designer of d.-c. motor and generator equipment, Mr. Smith was with the Elliott Company of Ridgway, Pa., and the Westinghouse Electric and Manufacturing Co.

Ray G. Noble

Ray G. Noble, has returned to his old duties as advertising manager for the Union Wire Rope Corporation after three years service with the U. S. Army.

Mr. Noble had been with the wire corporation for five years before his entrance into the armed service.

The Smith Engineering Works of Milwaukee, manufacturers of Telsmith equipment for mines, quarries and gravel plants, announces the following changes in organization:

G. L. Smith

Gerald L. Smith, who was granted a leave of absence to serve as an officer in the U. S. Navy, has returned to become vice-president in charge of sales.

Donald D. Barnes, who formerly served as executive vice-president and sales manager, will serve as executive vice-president. H. H. Schaper will continue in his position of assistant sales manager.

Other officers are as follows: Charles F. Smith, president and treasurer; A. L. Munro, secretary and chief engineer; H. H. Rumpel, works manager; W. G. Simerson, assistant treasurer and office manager; E. P. Farrill, assistant secretary; Elmer E. Kraig, chief draftsman; Howard Neher, plant superintendent; Thomas S. Smith, service engineer. Mr. Rumpel has recently returned from a three-months' trip to South Africa and England, during which he visited factories producing Telsmith equipment.

William T. Morris, president of the American Chain & Cable Co. since 1936 and president and a director of the Michigan Chemical Corporation of St. Louis, Mich., died at 62 years of age in New York City on February 6. Mr. Morris was also on the executive staffs of several other well known firms.

IT COSTS NO MORE TO USE THE BEST

REPLACE WITH "Indian Brand"

Shovel Dippers
Dipper Teeth
Shovel Treads

Crusher Jaw Plates
Mantles—Concaves
Bowl Liners
Roll Shells

Pulverizer Hammers
Grate Bars—Breaker Plates

Ball Mill Liners
Screen Plates

The Frog, Switch & Mfg. Co. CARLISLE, PA.

ESTABLISHED 1881

...this Electroline FIEGE WIRE ROPE CONNECTOR

See how easily it goes on—simply slide the sleeve on the cable, spread the strands

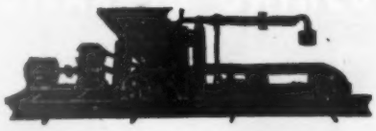
insert and drive in the plug and apply the socket

Then see what a solid and permanent joint you have by looking at it through the inspection hole put there for the purpose.

This better connector damps vibration, prolongs wire rope life; is in fact the STRONGEST PART of a wire rope assembly.

Electroline Company
4121 SOUTH LASALLE STREET
CHICAGO 9, ILLINOIS

SPEED and ACCURACY IN WEIGHING BLENDING FEEDING RECORDING



SCHAFFER POIDOMETER

Schaffer Poidometers *speed* production, but also combine extreme accuracy in weighing, blending, feeding and recording raw or finished materials to assure highest production output with lowest operating costs.

Poidometers are available with remote control recording and operating devices . . . precision engineered to insure years of continuous service.

Write for Catalog No. 5

SCHAFFER POIDOMETER CO., 2828 Smallman St., Pittsburgh 22, Pa.

Control Your Product

with the

GILSON MECHANICAL TESTING SCREEN

Prepare for post war competition with this modern testing equipment. Operation is smooth and quiet. Separates accurately up to one cubic foot of concrete aggregate in five minutes or less. An attachment is available for vibrating standard sand sieves. Write for complete information.

THE GILSON SCREEN CO.
P. O. BOX 186 MERCER, PA.

G. A. Price

The Westinghouse Electric Corporation has announced the election of Gwilym A. Price as president, succeeding George H. Bucher, who has resigned. Under a recent amendment of the corporation's by-laws, Mr. Price as president will be the chief executive officer.

A. W. Robertson, who as chairman has been the corporation's chief executive officer since 1929, has reached retirement age. He was elected chairman of the Westinghouse board of directors under the new by-laws and will continue as a member of the Westinghouse organization in a less active capacity.

Mr. Bucher was elected vice chairman of the board of directors and will continue to serve as chairman of the Westinghouse Electric International Company, which handles all export business of the parent company.

Mr. Price was elected a vice president of Westinghouse in September, 1943, and had been executive vice-president since May, 1945. He was elected a member of the corporation's board of directors in January, 1945.

At the annual meeting of the American Hoist & Derrick Co., held on January 22, the following officers and directors were elected: Frederic Crosby, chairman of the board and executive committee; H. O. Washburn, president; S. M. Hunter, vice-president of sales; D. B. Botkin, vice-president of manufacturing; J. F. Bishop, secretary and treasurer; R. J. Henry, assistant secretary.

Approximately 400 delegates attending the Association Equipment Distributors' convention in Chicago recently were guests at an informal opening of the new Melrose Park, Ill., plant of the International Harvester Co. The plant, which was formerly the Buick aviation engine factory, is situated on a 125-acre tract west of Chicago and has more than 2,000,000 square feet of roofed floor space. The plant will be known as the Melrose Park Works of the International Harvester Co.

The TD-24, International's new streamlined diesel crawler tractor, was the center of interest at the display. Other new products, soon to be on the market, were a marine diesel engine, several power units and a large industrial wheel tractor.

A. J. Jorgensen, who was formerly engineer-in-charge of the crushing, cement and mining section of the Allis-Chalmers Manufacturing Co. of Milwaukee, has been promoted to chief mechanical engineer of that section. Mr. Jorgensen has been associated with Allis-Chalmers since 1912.

R. R. Rockafield, named to succeed Mr. Jorgensen, has been with Allis-Chalmers since 1924, when the company acquired the power and mining department of the Worthington Pump & Machinery Corporation.

A. J. Jorgensen

R. R. Rockafield

Lima Locomotive Works, Inc., Shovel and Crane Division, has announced the appointment of Paul Fenwick as district manager in the states of California, Arizona and Nevada.

Mr. Fenwick entered the U. S. Army in August, 1941, and served with the Transportation Corps until his release in December, 1945. At the time of his release he was a lieutenant colonel. Before the period of his service in the Army, Mr. Fenwick had been associated with the shovel and crane industry, specializing in manufacturing, design and field sales.

Paul Fenwick

The Victor J. Nelson Engineering & Construction Co. of Burbank, California, reports it is moving to a new building at 1601 Victory Boulevard, Glendale, Calif.

CUSTOM-BUILT AMERICANS WILL IMPROVE YOUR CRUSHING OPERATION

Americans fit the job and its problems

Americans are not "all purpose" crushers. Americans are available in models to fit your particular operation. Easily accessible and adjustable for changes of sizing from roadstone to agstone and vice versa. Americans offer a wide range of reduction and a high output—up to 250 TPH. Americans are easily installed in minimum headroom.

Send for informational bulletin on Americans.

American PULVERIZER COMPANY

Originators and Manufacturers of Ring Crushers and Pulverizers

1059 MACKLIND AVE.
ST. LOUIS 10, MO.

Trade Literature

The pieces of literature listed below can be obtained direct from the manufacturers named, or requests can be addressed to Pit and Quarry's "Service to Readers" Department.

AN INDEX TO CUTTING INFORMATION. 31 pages. Clipper Manufacturing Company, Kansas City.

CHART FOR WELDERS. Indicates the proper shades of filter lenses for different types of welding operations. The American Optical Co., Southbridge, Mass.

HEAD TO FOOT PROTECTION FOR INDUSTRIAL WORKERS. 9 pages. General Scientific Equipment Company, Philadelphia.

E-M SYNCHRONIZER. 20 pages. Vol. 7, No. 2. Electric Machinery Manufacturing Company, Minneapolis, Minnesota.

ACCURATE REAGENT CONTROL WITH DENVER REAGENT FEEDERS. 12 pages. Denver Equipment Company, Denver, Colorado.

SCHRAMM AIR COMPRESSORS. 44 pages. Catalog 45. Schramm, Inc., West Chester, Pennsylvania.

THE FEEDOWEIGHT. 16 pages. Bulletin 551. Merrick Scale Manufacturing Company, Passaic, New Jersey.

WEIGHT AT A GLANCE. 21 pages. Bulletin 375. Merrick Scale Manufacturing Company, Passaic, New Jersey.

WELDING BRIEFS. 8 pages. Metal and Thermit Corporation, New York, New York.

FACTORS TO SEEK AND CHECK IN BUYING A ROTARY DRIER. 11 pages. The L. R. Christie Company, New York City.

ENCYCLOPEDIA OF BUSINESS INFORMATION SOURCES. *Compiled under the direction of W. C. Hanson, business concultant, formerly with the Market Analysis Department of Curtiss Wright Corporation. Published by the National Research Bureau, Inc., Chicago.*

Contains over 7,000 listings of basic information sources under 222 classifications, covering industry, government, agriculture and commerce. Two volumes, loose-leaf; master-indexed and arranged under 24 major classifications.

THEORY AND PRACTICE OF LIME MANUFACTURE. *By Victor J. Azbe. Published by Y. N. Rauert, St. Louis, Mo. 400 pages. Price, $8.00.*

A collection of articles on various aspects of the lime manufacturing industry, based upon 25 years' work in more than 100 lime plants. Combines knowledge of theory indispensable for success in operating a lime plant with practical advice for the plant owner.

THE VETERAN'S GUIDE. *63 pages. Published by Prentice-Hall, Inc., New York. Available to World War II veterans, without charge.*

A summary of the veteran's rights, including loans, re-employment, pensions, education, life insurance and tax relief.

PERFORATED METAL SCREENS

FOR SAND, GRAVEL STONE, ETC.

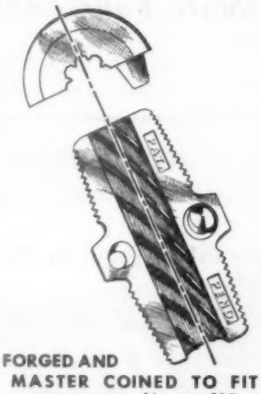
Manufactured exactly to your specifications.

Any size or style screen, in thickness of steel wanted with any size perforation desired.
We can promptly duplicate your present screens at lowest prices.
Prompt Shipment

CHICAGO PERFORATING CO.
2435 W. 24TH PLACE CHICAGO, ILL.
Telephone CANAL 1459

SAFE-LINE
WIRE ROPE CLAMP
Never Slips

FASTER — SAFER — ELIMINATES SPLICING



FORGED AND MASTER COINED TO FIT ROPE SIZES 1/16" TO 3/4"

Safe-Line double spiral splines fit each wire and strand, providing a *never slip* grip, without cutting action to the rope. Replacement guarantee on clamp against breakage and fracture.

Millions in daily use prove *Safe-Line* the right way to hold wire rope securely. It's the better way, too!

Better because *Safe-Lines* are faster than splicing and serving, or using U-bolts.

Better because *Safe-Lines* outpull the strongest rope, hold a tight thimble, minimize rope or sling breakage.

Better, too, because *Safe-Lines* enclose sharp wire ends, preventing personal injury and mental hazards.

Try this better way that saves you time and money.

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Title .....

Company Name .....

Send to (Address)... .....

We Produce .....

"When the Taylor Spiral Pipe didn't collapse . . . Bill did"

At first glance strength like this IS a knock-out!

In many plants the cost of piping is too high. It is too high because light-but-strong Taylor Spiral Pipe will take care of a large percentage of the services ordinarily assigned to heavier more costly Standard Thickness Pipe!

Is this heavier pipe used because it is considered safer or more durable? No, hundreds of installations have proved that Taylor Spiral Pipe can handle run-of-plant piping with strength and service life to spare. The fact is that Standard Thickness Pipe is used as a matter of custom—the time-honored custom of thinking in terms of Standard Thickness for everything not requiring still heavier pipe.

It pays to break away from that heavy-pipe tradition and change to Taylor Spiral for services like those listed below. The spiral construction gives Taylor Spiral Pipe remarkable strength and rigidity—makes it the strongest type of pipe, gauge for gauge and pound for pound. Light weight cuts initial cost, transportation cost, handling cost, erection cost. As a result, the installed cost in many cases is less than half that of the heavy pipe it so well replaces.

Switching to Taylor Spiral Pipe for services like those listed is made easy by the complete range of sizes and wide variety of fittings. Thicknesses range from 12 to 6 gauge; sizes from 6″ to 42″; joint lengths up to 40 ft. All types of end joints and couplings, all kinds of fittings and specials or fabricated assemblies are produced by Taylor Forge & Pipe Works, assuring complete service and undivided responsibility.

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago, P. O. Box 485 ★ New York Office: 50 Church St. ★ Philadelphia Office: Broad Street Station Bldg.

TAYLOR
SPIRAL PIPE
CHANGE TO
TAYLOR SPIRAL PIPE FOR:
• High and Low Pressure Water Lines
• Low Pressure Steam and Air Lines
• Steam and Diesel Exhaust Lines
• Vacuum and Suction Lines
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• Sand and Gravel Lines
• Industrial Gas Lines
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Dumptors Cut Costs in Strip Mines

BACK FOR MORE—FASTER!

Because they're back for more, faster, Koehring Dumptors keep shovels working at top speed in strip mine operations everywhere. They hustle coal from loading shovels to railside tipples—faster than any other hauling unit. They get rid of overburden as fast as the stripping shovels scoop it up. More trips per hour mean more yards per day, lower costs all around. Lower investment, too, because it takes fewer Dumptors to handle shovel output.

KOEHRING COMPANY
MILWAUKEE 10, WISCONSIN

Accurate spotting because driver faces loading unit . . . quick getaway with 3 fast forward speeds and 3 reverse speeds that are just as fast . . . high travel speed . . . instantaneous dump at the flick of a lever.

KOEHRING HEAVY DUTY

HEAVY-DUTY CONSTRUCTION EQUIPMENT

March, 1946

The CONCRETE MANUFACTURER

A Special Section of...

"THEY TEST THE BEST"

CONCRETE BRICKS and BLOCKS made on

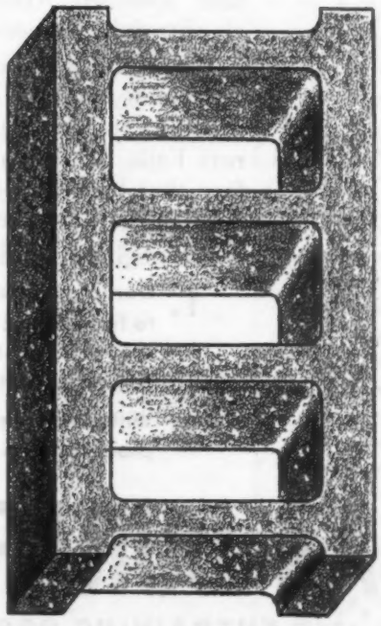
J&C MACHINES

"WORK WELL DONE SINCE '81"

Do your customers demand "the best in concrete products" — accurately sized, uniform bricks and blocks with higher strengths . . . sharp corners and edges . . . fine-textured surfaces?

"J&C" Equipment produces concrete units meeting all specifications for strength, appearance, and easy handling.

"J&C" Brick and Block Machines are finely engineered and built to provide years of continuous high output, with extremely low operating and maintenance costs.



JACKSON & CHURCH CO.
Saginaw, Michigan

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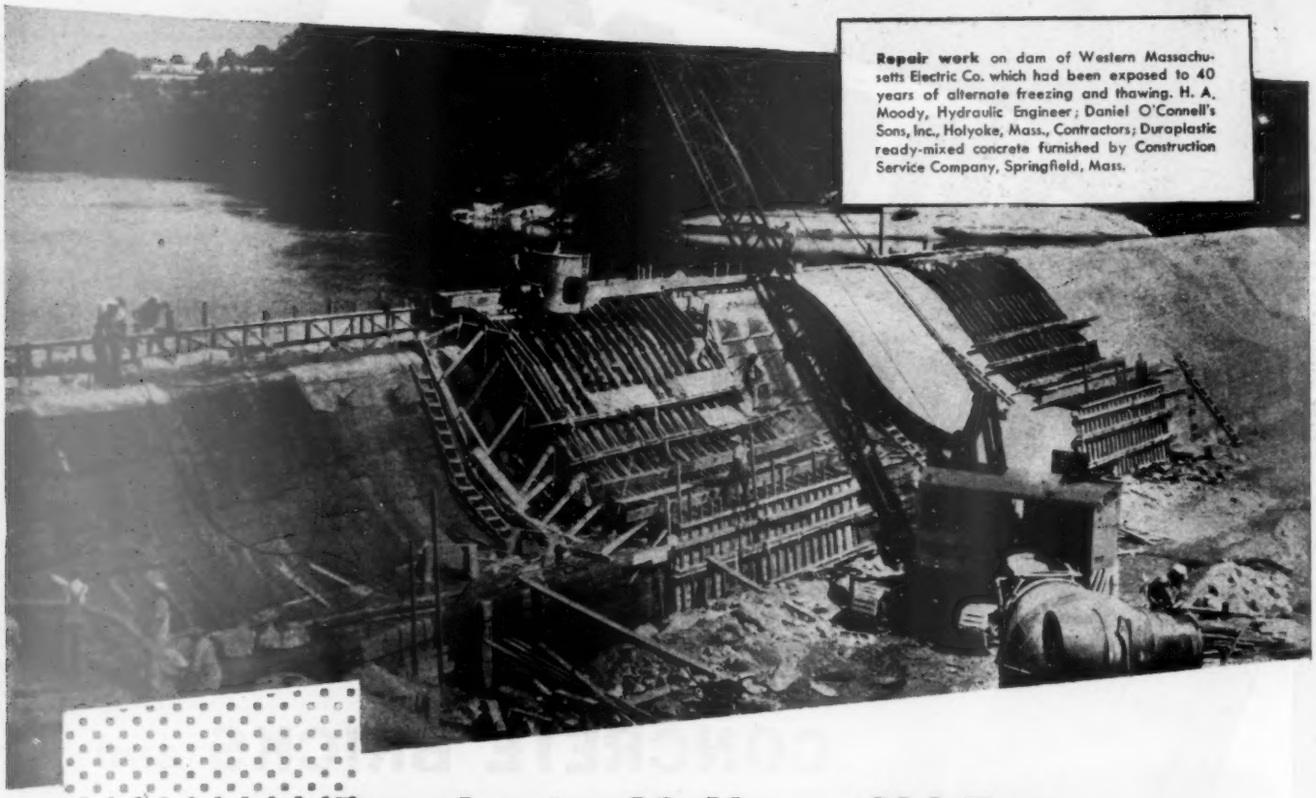

Repair work on dam of Western Massachusetts Electric Co. which had been exposed to 40 years of alternate freezing and thawing. H. A. Moody, Hydraulic Engineer; Daniel O'Connell's Sons, Inc., Holyoke, Mass., Contractors; Duraplastic ready-mixed concrete furnished by Construction Service Company, Springfield, Mass.

Repairs to 40-Year-Old Dam made with AIR-ENTRAINED CONCRETE

At the Montague City, Mass., hydro-electric station of the Western Massachusetts Electric Co., the turbine scroll cases had been exposed to 28 winters of freezing and thawing. To repair them the engineer specified Atlas Duraplastic air-entraining cement.

The resulting concrete was so satisfactory that the engineer again used Duraplastic cement at Gardners Falls, Mass., to repair a dam face that had been exposed to 40 New England winters.

The engineer states that—

1. **Duraplastic cement was used to fortify the concrete against the action of freezing and thawing weather;**
2. **With this cement there was practically no segregation or bleeding in the concrete mix;**
3. **This cement so improved workability that the entire surface is free from stone pockets and sand streaks;**
4. **Such a surface probably will longer resist the abrasive action of over-flowing water.**

Atlas Duraplastic cement complies with ASTM specifications, sells at the same price as regular cement, requires no additional materials, and makes better concrete at no extra cost. Send for details. Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: New York, Chicago, Albany, Boston, Philadelphia, Pittsburgh, Cleveland, St. Louis, Minneapolis, Duluth, Kansas City, Des Moines, Birmingham, Waco. PQ-D-31

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TRADE MARK REG. U. A. C. CO.

AIR-ENTRAINING PORTLAND CEMENT

A UNIVERSAL ATLAS PRODUCT

SUNDAY EVENINGS—*American Broadcasting Company (ABC) Network—U. S. Steel's "The Theatre Guild on the Air"*

The CONCRETE MANUFACTURER

MARCH, 1946

Vol. 9 No. 9

A MAGAZINE DEVOTED TO PRODUCTION OF CONCRETE PRODUCTS AND READY - MIXED CONCRETE

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J. A. CONVERSE

N.C.M.A. Members Will See Exhibits At March Meeting

At the annual meeting of the National Concrete Masonry Association in Chicago, the limited exhibit of machinery and materials related to the concrete industry will be held from Monday, March 11, through Thursday, March 14, at the Sherman Hotel.

A feature of the meeting will be a duplication of a display of drawings, sketches and plans for new plants, as well as materials handling and conveying methods, which was originally shown at the conference on plant design last fall. Scheduled meetings will cover many angles of plant construction and operating problems, merchandising and recommended construction practices.

World War II Veterans Start Transit-Mix Firm

A new industry at El Dorado, Kans., the Lewis & West Transit Mix Concrete Co., represents a business venture launched by two World War II veterans, Ralph E. Lewis and Milo E. West. Mr. Lewis recently returned to his home from 22 months in the Army Air Force, and Mr. West was released from the Navy Seabees last November. The partners will employ transit-mix trucks of 2-cubic-yard capacity. They anticipate turning out 65 or 70 cubic yards of concrete per day.

Produce Irrigation Pipe Of Improved End Design

At the new plant of the Basin Concrete Products Company, Ephrata, Wash., a Sherman concrete pipe-making machine has already been installed for the production of irrigation, sewer and culvert pipe. A special feature of the irrigation pipe will be an improved end, with heavier wall construction at the point where breakage most commonly occurs in conventional pipes.

The owners of the firm, W. T. Clack and Art Sather, report that delivery of a Butler batching plant and 3-cu. yd. Jaeger ready-mix concrete trucks will be made in the immediate future for the opening of the plant. The batcher will store five classifications of sand and gravel, in addition to nearly two carloads of bulk cement.

Promotions Announced by Concrete Pile Company

The Raymond Concrete Pile Co., of New York City recently announced promotions for Maxwell M. Upson and William V. McMeniman. Mr. Upson, who has been president of the firm since 1931, now assumes the office of Morton D. Hull, one of the founders of the company. He was general manager from 1907 to 1931.

Mr. McMeniman, who is the new president, has been affiliated with the firm since 1911 and has been vice-president and general manager since 1931.

Association Headquarters Moved to New Location

Offices of the National Concrete Masonry Association were moved on February 18 from 33 West Grand Avenue, Chicago, to 38 South Dearborn Street, Chicago. A change of headquarters became necessary because of the expansion of the association's work.

Coming Events

March 11-12, 1946—*Chicago.* Annual meeting, Sand Lime Brick Association, Hotel Sherman.

March 12-14, 1946—*Chicago.* Annual conference and exposition, National Concrete Masonry Association, Sherman Hotel.

April 11-13, 1946—*Chicago.* Annual meeting, American Concrete Pipe Assocition, Edgewater Beach Hotel.

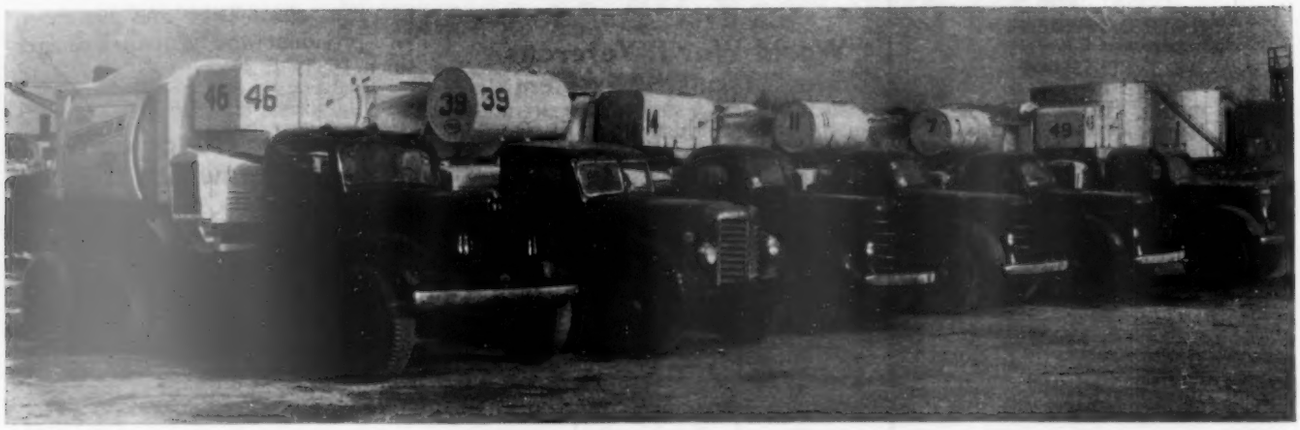
June 24-28, 1946—*Buffalo.* Annual meeting, American Society for Testing Materials and exhibit of testing apparatus and related equipment.

RENT 'EM

. . . and Reap

PEAK PROFITS in ready-mixed CONCRETE

CONSERCO
TRUCK MIXERS



The CONSERCO System offers a TRUCK RENTAL service to concrete producers which will assure good profits without any increase in capital investments.

CONSERCO trucks are under full control of lessee, even to his own driver. Choice of 4, 4½ or 5 cu. yd. mixer.

Remember, we will also discuss the SALE or PURCHASE of complete units.

Write for full details, including rates.

CONSERCO, INC. 1600 South Capitol St., Washington 3, D. C.
Phone: ATlantic 9055

Concrete Masonry Units Now Subject To HH Priority Rules

According to recent information from Washington, concrete masonry units have been added to the list of materials subject to HH priority orders, as a result of action by the Civilian Production Administration. Efforts of the National Concrete Masonry Association had earlier been effective in bringing about the C.P.A.'s special directive granting priority assistance to manufacturers of concrete block machinery, mixers and other essential equipment in securing materials and parts for new models and for repairs.

Concrete Firm Absorbed By Eastern Concern

C. P. Maloney, Sr., president of the Maloney Concrete Co., Washington, D. C., and C. J. Shepherdson of the Virginia Concrete Co., Inc., Arlington, Va., have bought all the stock of the latter company from the former owners. With the three batching plants involved, these companies now have eight plants distributed throughout the Washington area. The officers of the Virginia Concrete Co. are: C. J. Sherpherdson, president; C. P. Maloney, Sr., vice-president; C. P. Maloney, Jr., secretary and treasurer.

Distributor Employs Discharged Veteran

E. W. Dienhart, Jr., who was recently discharged from the armed services, is now associated with the Thomas W. Noble Co., Chicago distributor for the Stearns Manufacturing Co. Mr. Dienhart is the son of E. W. Dienhart, Sr., executive secretary of the National Concrete Masonry Association.

Two Ready-Mix Plants Are Formed in Northwest

Two building projects reported by firms in the Northwest are those of the Insul Block & Concrete Co. and A. J. Chaussee & Co. The Insul Block & Concrete Co., recently incorporated at Yakima, Wash., has announced that its plant will begin producing blocks and ready-mixed concrete before March 1. A $15,000 warehouse and office building will be erected. Incorporators are Fred E. Young, president; B. F. Jacobs, vice-president; L. B. Vincent, secretary; and James Orkney. Mr. Jacobs will also act as plant manager.

A $37,500 concrete plant is under construction at Boise, Idaho, by A. J. Chaussee & Co. The plant will have its own crushing, screening and washing facilities in addition to the ready-mix department.

New Production Manager For Cleveland Firm

According to an announcement by W. H. Crangle, vice-president and general manager of the Cleveland Builders Supply Co., Jay C. Ehle has been appointed production manager of the firm. Mr. Ehle will be in charge of general supervision of production at the company's three Cleveland plants. He is chairman of the committee on curing methods of the National Concrete Masonry Association.

The prevailing methods and types of equipment for producing ready-mixed concrete or concrete products can be found in the Concrete Industries Yearbook.

Navy Commander Resumes Sales Engineer Duties

The Graystone Concrete Products Co. of Seattle has announced that Norman L. Fields, recently discharged from the Navy, will resume his position with the firm as sales engineer. Mr. Fields rose to the rank of commander during his five years in the Navy. He was in command of a destroyer escort and served in the Atlantic, Pacific and Mediterranean theaters.

Unique Card System Reduces Time Losses On Ready-Mix Jobs

At the recent National Ready Mixed Concrete Association convention held in Cincinnati, Ohio, W. R. Sostheim of New Albany Ready Mixed Concrete, Inc., New Albany, Indiana, created somewhat of a furor among ready-mix producers when he announced that his company has developed a satisfactory method for eliminating truck-mixer delays at the job. During the war, this company operated over 50 truck-mixers on the construction of vital war projects and the elimination of delays led to many experiments such as imposing fines on contractors for delays, reduction in the number of trucks used at a job when delays became common, and the providing of hoppers and barrows in which to store the concrete until needed. All of these proved unsuccessful.

Mr. Sostheim said that the present method, developed from the suggestions of his drivers, has effected a 98 per cent. reduction in time lost at the job by the company's trucks. This simple method involves the use of a 5- by 8-inch placard, as illustrated, which is delivered with the first load of concrete to each job. He explained that at first a card was sent with every load, but that the moral effect was such that only one for each job proved necessary.

This card, which states that the operator of a truck is allowed a maximum of 20 minutes to unload, provides space for entering the time required to unload a mixer. Any delays must be described and signed by the contractor's employee in charge. No charges are made for delays, as Mr. Sostheim states, "No one ever paid those anyhow."

NEW ALBANY **READY-MIX CONCRETE, Inc.** JEFFERSONVILLE

IMPORTANT!

The operator of this truck is allowed a maximum of **20 MINUTES** in which to **UNLOAD** this concrete. If more than **20 MINUTES** is required, please **SIGN THIS CARD.**

Ticket No. _____ Date _____

Time required to unload this truck. Hours _____ Minutes _____

Cause of delay _____

_____

_____

Signature of Contractor or Owner _____

The **COST** of concrete is governed by the length of the haul and the **UNLOADING TIME.** Please cooperate with us so that we will not be compelled to advance our prices, as has already been done on other building materials. WE ARE TRYING HARD TO HELP YOU, BUT NEED YOUR HELP TO DO SO.

Chicago to be Site Of A.C.P.A. Meeting Scheduled for April

The American Concrete Pipe Association has scheduled its 38th annual convention for April 11 and 12 at the Edgewater Beach Hotel in Chicago. The board of directors will hold a meeting on April 9 and 10.

General meetings will begin with a session on the morning of April 11, at which nominations for new officers and board members will be presented. The newly-elected board will meet on April 13.

New Building Material Made from Vermiculite

Manufacture of a building material composed of expanded vermiculite (mined near Franklin, N. C.) and reinforced light concrete is due to begin in the immediate future at the Knox Concrete Products Co. of Knoxville, Tenn. It is claimed that the material, turned out in slabs 8½ ft. by 32 in. by 3½ in., is fireproof, soundproof and a good insulator, and that it can be planed, sawed and painted.

Concrete Products Plants Improve and Expand

Among the many new developments in the concrete products industry are the following, describing improvements and construction programs of four firms in the Midwest.

George W. Katterjohn, Jr., of Owensboro, Ky., recently announced that a $65,000 plant would be erected for the manufacture of concrete blocks and other concrete products. Construction has already begun on a modern building which is expected to be completed and ready for production by May 15.

Mr. Katterjohn is also the owner of concrete products plants at Paducah and Nashville, where more than 5,000,000 "Katter-blox" have been manufactured.

A. L. Hooker and George Simanton, partners of the Auburn Concrete Products Co., a firm recently organized in Auburn, Ind., expect to begin production at their new plant in the near future. A new Stearns concrete block machine is on the plant site, ready to be installed. Both heavy and light-weight blocks will be made. Celocrete will be used for the latter.

The first post-war industry at Sterling, Ill., will be the plant of the Pennington Concrete Co., now under construction. After its completion, the firm's two original plants, also at Sterling, will be merged into one. A second building will be constructed later near the one now being erected.

Frank Pennington, owner, has been in the concrete products business for 10 years. In the new plant he will employ Celocrete, as well as concrete, for the manufacture of fireproofed bricks, blocks and chimney facing.

New equipment and improvements costing about $35,000 will be added at the Fond du Lac Concrete Products Corp., of Fond du Lac, Wis. Installation of a new concrete machine will boost present productive capacity from 1,700 blocks to 6,000 blocks a day. An addition, which will house a new sand elevator, concrete mixer and overhead steel bins with an automatic weight batcher, is almost completed. George Andrew, manager, states that the company expects its increased capacity to aid in solving the local housing problem.

P.C.A. to Resume Ads In Five Magazines

The Portland Cement Association has recently resumed its national magazine advertising program featuring concrete masonry for home construction. Ads are scheduled to appear in *American Home, Better Homes and Gardens, House and Garden, House Beautiful and Parents' Magazine.*

Federal Agency Head Joins Sales Staff

Myron Hultmark, who was formerly in charge of the concrete products section of the War Production Board and its successor agency, the Civilian Production Administration, has been appointed to the sales staff of the Besser Manufacturing Co.

Lava Rock to be Used In Block Production

At Snohomish, Washington, a new industry has been established by Freeman Lancaster of Everett, whose plant will turn out concrete tile and scovia construction blocks. The latter are made of lava (from Mt. Rainier), cement and sand. Other products will include concrete foundation blocks and stepping stones.

Concrete Producers Must Compete with Black Market Prices

The stormy concrete block price situation in the Miami area, which erupted some weeks ago with the resignation of a local official of the Office of Price Administration, seems to have taken a definite turn for the worse notwithstanding a recently-granted increase in ceiling prices from 11½ cents to 16 cents delivered. Miami newspapers report that private individuals who desire to build homes are now paying as high as 50 cents per block laid, or doing without, since the smaller block producers refuse to sell on any other basis.

This practice stems from the fact that O.P.A. has no jurisdiction over the laying price. Even in the present high-priced labor market, 15 cents per unit should be a fair price for laying block. This would justify a price on the laid basis of 31 cents. If the reported 50-cent price is actually being charged, the extra 19 cents comes clearly under the heading of black market operations. Chiselers, like the poor, seem always to be with us, but it is to be hoped that responsible block producers in the Miami area will for the good of the industry do everything in their power to curb such activities.

Former Naval Officer Joins Ready-Mix Firm

Lt. A. D. Dunlap, who was recently released from the U. S. Navy, is now building supplies manager for the Ann Arbor Construction Co., Ann Arbor, Mich., producers of ready-mixed concrete and bituminized aggregates.

WE AGREE

that modesty is a commendable virtue, but too much of it, on your part, is troubling your editors. Other readers of THE CONCRETE MANUFACTURER would like to keep up to date on happenings at your plant. So why not send in news of yourself and your firm? We will be glad to receive any important information concerning manufacturers of ready-mixed concrete and concrete products.

Promoting the Farm Market for Concrete Products — Part II

By WILLIAM M. AVERY

Direct Mail Leaflets and Sales Letters

IN Part I of this discussion, which appeared in the December issue of THE CONCRETE MANUFACTURER, we covered in some detail that phase of the Portland Cement Association's farm promotion portfolio dealing with advertising in local newspapers and other publications. Direct mail campaigns offer another excellent medium through which to build up sales volume and cultivate new markets.

A good mailing list is the first requisite in any direct mail campaign, and the results obtained will in all cases accurately reflect the amount of time and effort put forth in developing a complete list of qualified prospects within the area normally supplied by the company. In some lines of endeavor mailing lists can be purchased at fixed rates per 100 or per 1,000 names. If the fee charged is small the chances are that the list is not up to date, and that a fair number of the prospects will have moved to other localities or to the local cemetery; the latter are somewhat facetiously referred to as "dead prospects," and in most cases take no active part in community affairs except at election time.

By all odds the best procedure is for the company to develop its own mailing list. County agricultural agents, bankers, building and loan associations, county directories, tax assessors and local newspapers are all excellent sources. Local equipment distributors generally employ direct-mail campaigns, and it should be well worth while to get in touch with them, since your prospects will ordinarily be the same individuals and there is no competition between your products.

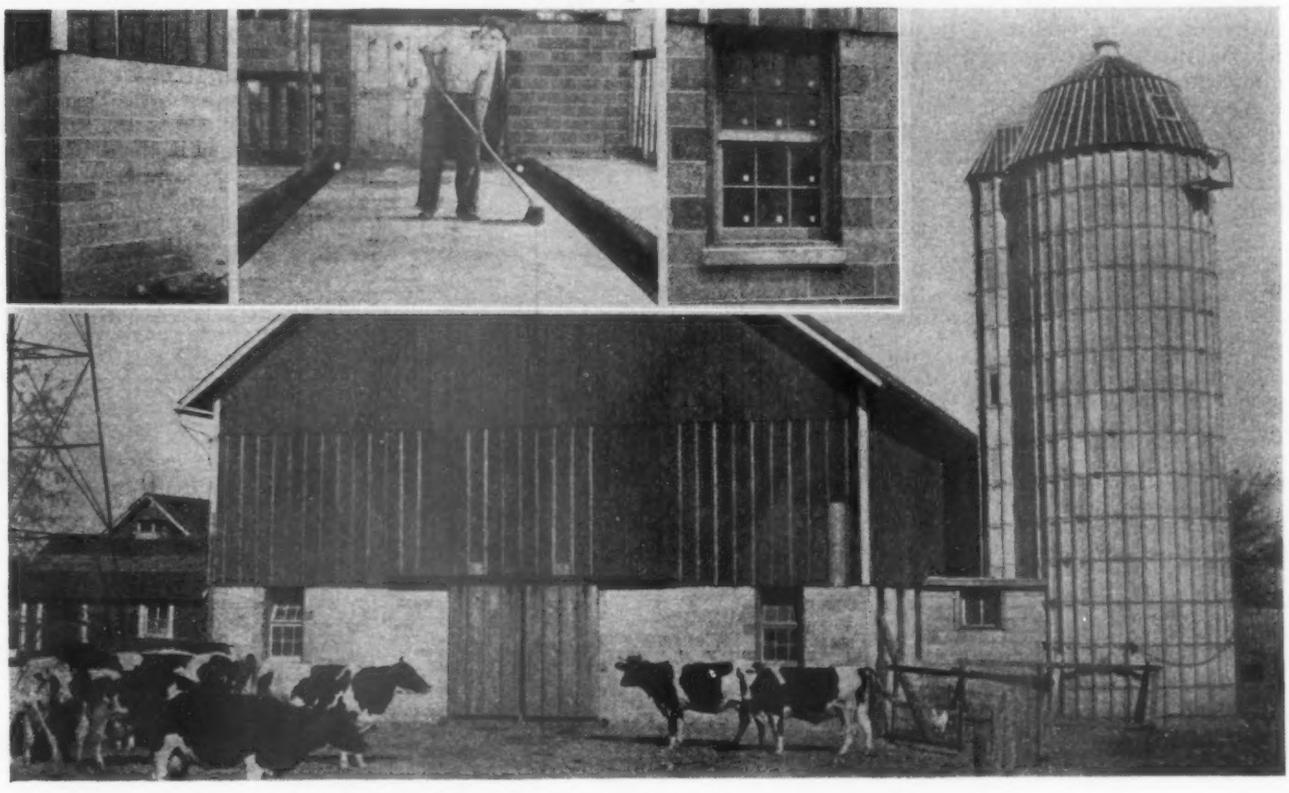
It has been demonstrated repeatedly that direct mail is most effective when addressed to an individual rather than to a box holder. The personal touch seems to have an effect out of all proportion to its apparent significance, and veteran direct-mail campaigners are almost unanimous in saying: "Direct your appeal to an individual—*not* to a number!"

If lack of time makes it imperative that you employ the box holder method, the first step is to consult with the local postmaster. He will tell you the number of rural routes under his jurisdiction, the number of box holders on each route, and how to prepare your material for mailing. This information will make it possible to determine the amount of advertising material to order. Each piece of mail will be addressed simply:

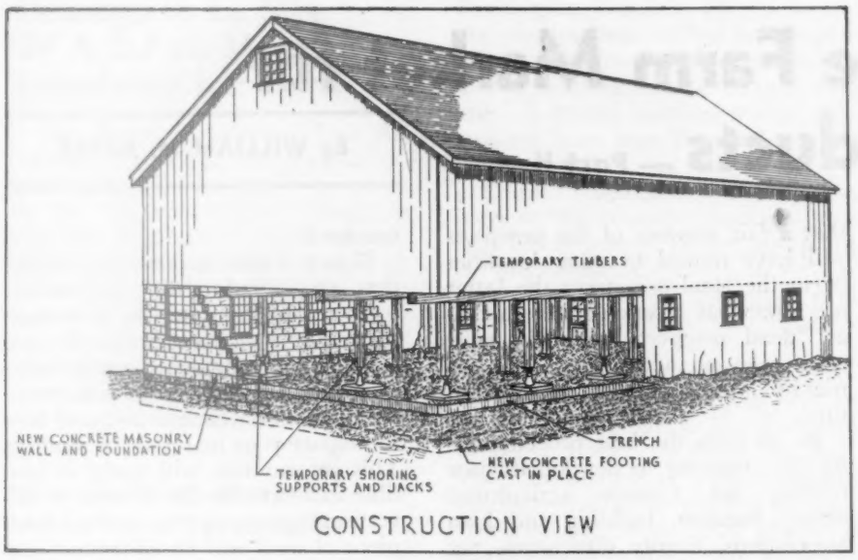
Rural Route Boxholder
Local

A good mailing list should distinguish between owners and tenants, and wherever it is possible to do so, both should be indicated. Generally speaking, tenants are not good sales prospects, although they may be indirectly instrumental in bringing about sales. Many city people own farms today and are interested in maintaining and improving them, and it should be well worth the additional trouble required to make your sales appeal directly to them.

The writing of sales letters has become something of a specialized field in recent years, and innumerable



Mailing leaflets furnished by P.C.A. are copiously illustrated with eye-catching photographs and drawings to show the advantages of concrete in farm construction.



Drawings like the one above show how old barns can be given many additional years of useful life by renovation with masonry units.

textbooks have been written on the subject. While it is undoubtedly true that a great deal of pure "hooey" has been passed out on the subject, it is equally certain that good letters are far more effective in developing sales than slap-dash efforts. Concrete products makers will ordinarily not have time, means or the inclination to make a detailed study of sales letter writing, nor should it be necessary for them to do so. The P. C. A. farm market portfolio contains a number of specimen letters especially written to accompany the various advertising folders which can be purchased from the association at cost. The letters are suggestive rather than definitive, and the user can readily make any desirable changes to suit his own needs before having a supply mimeographed.

The following is a typical letter in the series prepared to accompany an advertising folder which shows how concrete masonry farm buildings are built:

(For Mailing F-132G)

Dear Sir:

One way, and incidentally an economical way, to increase your farm production is to build essential farm structures with concrete masonry.

Concrete masonry is suitable for the construction of practically all farm buildings, such as milk, farrowing, and poultry houses, dairy barns, and implement sheds. Buildings with our big 8- by 8- by 16-inch building units will give you warm, dry and firesafe structures that are easy to keep clean, saving you many hours of labor.

You will be surprised at how soon these buildings will pay for themselves when built of concrete masonry. We can make immediate delivery of concrete masonry units.

Why not come in and talk to us about your building plans, or if you prefer, write or telephone. We may be able to make helpful suggestions.

Yours very truly,
(Block Company)

Another excellent letter written to accompany a folder on restoring old farm buildings reads as follows:

(For Mailing F-133)

Dear Sir:

Hundreds of progressive farmers are busy today putting their buildings in first-class condition to help them do a better job.

Many old buildings have good frames and can be given years of added usefulness by putting them on well-built concrete masonry foundation walls.

The enclosed leaflet, "Restoring Old Farm Buildings With Concrete," shows how a number of worn-out farm buildings have been restored to useful, efficient service.

These improvements luckily are the kind that are best built of concrete masonry. We say luckily because concrete masonry is an available, ready-to-go type of construction which needs no priority rating.

Why not phone us or drop in and talk over your building and repair needs? We may be able to make some helpful suggestions, and if you wish we can give you the name of a good contractor or mason experienced in this class of work.

There's no obligation.

Very truly yours,
(Block Company)

Note in both of these examples the simplicity of the language used. Don't let it fool you, for more than half the trick in writing effective sales letters is in making the language simple without "talking down" to the reader. Whether you use the association's letters or prepare your own, keep in mind that your sole purpose is to make the prospect want to buy. The fact that you want to sell, although it is implicit in what you are doing, is not of the slightest interest to your prospect.

The folders in the series are designed so that a local printer can imprint the name and address of your firm. On folders describing the construction of particular farm buildings, such as a milk cooling house, a pig farrowing house or an egg laying house, space is also provided for imprinting your company's package price on the concrete masonry materials required for the specific building. The experience of many block producers has shown that quoting the farmer a package price is an effective way to make a sale. The prospect will usually be surprised at the moderate cost of the materials. The P. C. A. has prepared plans for the three farm buildings shown in the folders, and the block producer can distribute these to contractors who do rural work or to the farmers in case they do their own construction work.

The next and final installment in this series will discuss Farm Building Plan Service and Farm Construction Booklets for Follow-up Selling.

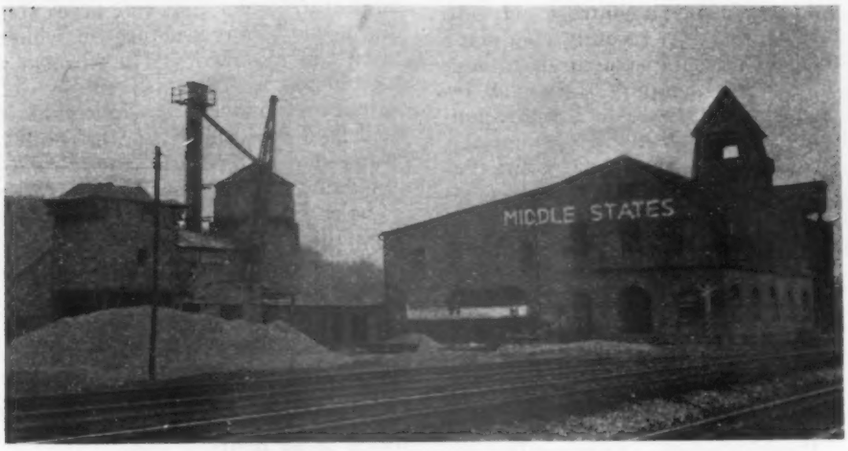
Nebraska Products Firm Starts Expansion Program

The Western Concrete Products Company of Lincoln, Nebraska, has started a post-war improvement and modernization program, the first phase of which is remodeling its warehouse office in Lincoln.

Type of Masonry Unit	Number of Units Required to Build from Plan			
	Milk House	Laying House		Pig Farrowing House
	1-Room Plan C-2154A	Straw Loft Plan C-2036A		Double Row Plan C-2169A
	12x14 ft.	20x20 ft.	20x40 ft.	24 ft. 0 in. x 29 ft. 4 in.
8x8x16 in. Plain	440	720	1,000	675
8x8x16 in. Corner	90	105	130	100
8x8x8 in. Corner	30	45	70	55
4x8x16 in. Plain	120	400	940	635
8x4x16 in. ½ Heights		6	10	
8x8 in. Lintels		1	2	
2 ft. 8 in. Long		1	2	
3 ft. 4 in. Long				8
4 ft. o in. Long	4	4	6	
4 ft. 8 in. Long	1			
5 ft. 4 in. Long		1	2	2
Slip Sills 4 in. x 10 in. x 2 ft. 8 in	4	3	5	
Total Price	$	$	$	$

One mailing folder provides space for imprinting company's package price for furnishing masonry units needed to build 3 specific farm structures.

Kentucky Ready-Mix Producer Supplies Large Local Industries



General view of the Middle States Concrete Company's plant at Ashland, Ky.

Left: H. V. Anderson, vice-president and general manager; right: George W. Cushing, vice-president in charge of operations.

another ON THE SPOT report

THE Middle States Concrete Company, Ashland, Kentucky, was incorporated in that state in April, 1944. The new corporation purchased the property of Wheeler & Putnam, who had for many years operated a ready-mixed-concrete and general materials concern on the Ohio River just a stone's throw from the business center of this thriving industrial city.

The plant is strategically located with respect to both raw materials and large consumers of ready-mixed concrete. Cement comes from a plant of the Alpha Cement Company located in Ironton, Ohio, just across the river, and the Ohio River Dredging Company supplies sand and gravel by barge from Point Pleasant, West Virginia, about 50 miles up the river. Among the important industrial consumers are the American Rolling Mill Company, which operates three blast furnaces and a completely integrated steel mill, the Ashland Oil and Refining Company, a recently-completed Allied Chemical plant at Ironton, Ohio, and the Chesapeake & Ohio Railroad.

The dredging concern unloads its barges into a hopper on the company's landing. The aggregates flow by gravity into shuttle cars which are hoisted up an incline to discharge into bins on the river bank. Under the present set-up materials have to be rehandled twice in order to feed the ready-mixed-concrete plant, but the company is planning to move the incline down river and install a shuttle conveyor to eliminate this difficulty. About 20,000 tons of aggregates can be stored in the ground-level concrete pits adjacent to the ready-mixed plant.

The Blaw-Knox 3-compartment 150-ton bin at the batching plant is fed with a Thew-Lorain 55 gasoline-powered clamshell. The automatic scales can turn out batches up to 2½ cubic yards. The bulk cement bin is a Johnson installation of 600-barrel capacity, fed with an undertrack screw and an elevator.

Currently the firm is operating

(*Continued on page* 146)

Six of the seven mixer trucks at the warehouse. The bulk cement bin at right has a 600-barrel capacity.

Northern California Concrete Masonry Association Formed

AN ORGANIZATION meeting of the Northern California Concrete Masonry Association took place on January 25, 1946 at the De Anza Hotel in San Jose. Attendance totaled 62 and 34 concrete-block manufacturers were represented. Officers were elected as follows:

President: G. F. Steigerwalt (Haydite Products Co., San Rafael); Vice-president: C. H. Howard (Basalt Rock Co., Inc., Napa); Secretary-treasurer: R. D. Rader (Portland Cement Information Bureau, San Francisco). Members of the Executive Committee: H. W. Chutter (Jourdan Concrete Pipe Co., Fresno); E. B. Hanson (Davis & Hanson, San Carlos); and Harry Brown (Brownlite Products, Modesto).

Headquarters are being established in Room 315, Chancery Building, San Francisco.

The new organization will largely replace the old California Concrete Masonry Association, formed in 1937 but discontinued during the war. Funds in the amount of $83.82, left over from the original organization, were ordered transferred into the treasury of the new group and, with this as a nucleus, dues in the amount of $5 per month per member, payable quarterly, were voted. To stimulate membership and obtain operating funds quickly, the $25 initiation fee was ordered suspended for a 30-day period for members who pay their first-quarter dues within that period.

Present by invitation was E. P. Ripley of the General Concrete Products Company of Van Nuys who is president of the Concrete Masonry Manufacturers Association of Southern California. He described the formation and development of the southern organization and talked at length on various phases of association work. Pointing out the advantages of the group-insurance policies which have been written for its members, he advised that similar blanket coverage could be extended to northern California. Such extension would also result in still greater savings to members in the form of larger dividends.

Mr. Ripley also touched upon the affiliation of his group with the American Federation of Labor with whom the members have a group contract agreement. He outlined what he declared to be distinct advantages in such a contract. He also told of the tests recently conducted to determine the structural strength of concrete masonry walls. A report of these tests, which were sponsored by the Portland Cement Association and observed by the Pacific Coast Building Officials Conference, is soon to be released.

E. F. Brovelli (Basalt Rock Co., Napa) discussed some of the essentials of good block manufacture. He stressed particularly the need for careful design of concrete mixtures as the means to attaining high strength, good density and improved appearance.

President-elect Steigerwalt explained details of Chapter 24 of the 1946 Building Code, shortly to be issued. This chapter is the masonry portion of the Uniform Building Code and it is believed its issuance will go a long way toward clarifying several controversial points connected with the use of concrete masonry.

Mr. Rader explained the work of the Portland Cement Information Bureau and pointed out various ways in which his bureau can be helpful to the concrete-block manufacturer.

$30,000 Pumice Brick Plant To Speed Production

J. F. Scholze, who has been manufacturing pumice brick for several years at Leavenworth, Wash., is building a $30,000 factory in that city. When the production peak has been attained, Mr. Scholze hopes to be able to produce enough bricks for two or three houses per day. (About 2,500 to 3,500 bricks are required to construct a five-room house.)

The lightweight units are altered in texture, color and weight to suit the needs of the structure for which they are destined. The firm has on hand a 20-years' supply of pumice, a material so light that it will float on water. A sample brick was found to have the same insulating value as 2½ inches of cork. Most Scholze bricks average ten times the strength called for.

Eventually Mr. Scholze intends to manufacture ready-mixed mortar in 100-pound lots, as well as window- and door-frame units. When these products have been added, he anticipates the possibility of the construction of a house from pumice brick in 48 hours.

New Hoyle Bros. Plant To Operate All Year

Construction of a concrete block and ready-mix plant is under way at Iron Mountain, Mich., by Hoyle Brothers. The plant, scheduled to begin production early in March, will be of the most modern design and will be mechanically operated throughout. The firm was organized with a capital of $100,000; it is headed by Robert C. Hoyle, manager and president, and Albert C. Hoyle, vice-president.

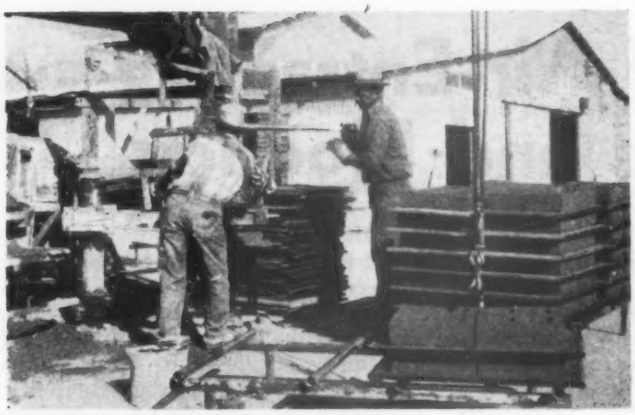
Present plans call for operation on a two-shift basis in the block plant, with a total daily output of 6,000 blocks. Four curing kilns will be built, to be heated by a 100-hp. steam boiler. For the ready-mix department, four mixers and two 6-wheel-drive trucks will be used. Concrete will be mixed and delivered throughout the entire year.

Tucson Concrete Products Firm Modernizes Production Methods

THE Concrete Products Co. of Tucson, Ariz., is owned and operated by Dr. C. J. Wilkerson, a retired physician who has found it more fun to make and sell concrete products than to treat the ailments of *homo sapiens*.

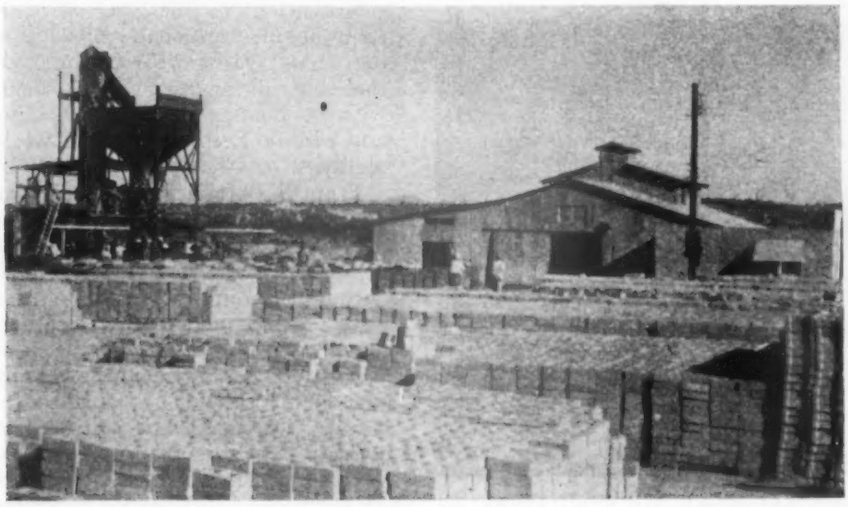
Since this plant was described in the March, 1938, issue of THE CONCRETE MANUFACTURER, numerous changes and improvements have been effected. Originally the company made 8- by 8- by 16-inch units, but has changed to 3⅝- by 12-inch in widths of 4, 6, 8 and 12 inches because of the opposition among masons to handling the heavier block.

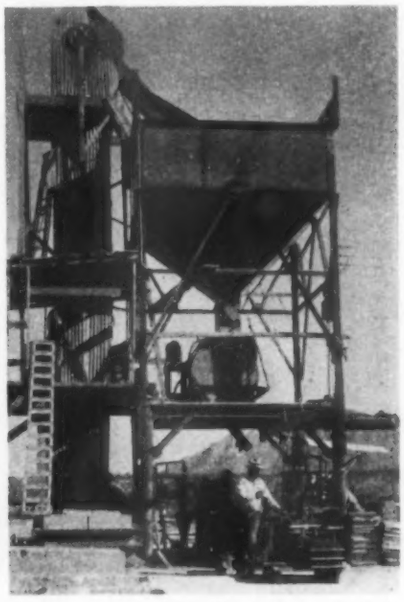
Dr. Wilkerson is particularly proud of his company's reputation for turning out units that uniformly test around 2,000 pounds per square inch compressive strength. The illustrations and captions on the following page, which were prepared by Dr. Wilkerson, describe the equipment and methods currently employed in his plant.



Above, left: Three Flam vibrators are grouped under the mixer, and as each batch drops from the mixer it is divided into three equal parts by a small chute. Molder in this view is steadying mold in upside down position while off-bearer is stripping block onto pallet previously placed on stand. The latter is arranged to allow the block and pallet to drop 5 inches to clear the mold which is then brought back to vibrating table. Block are stacked six courses high with four 19- by 30-inch pallets to the course. Skid in background is full and ready to be moved to the yard. Skids are made of 2-inch welded pipe.

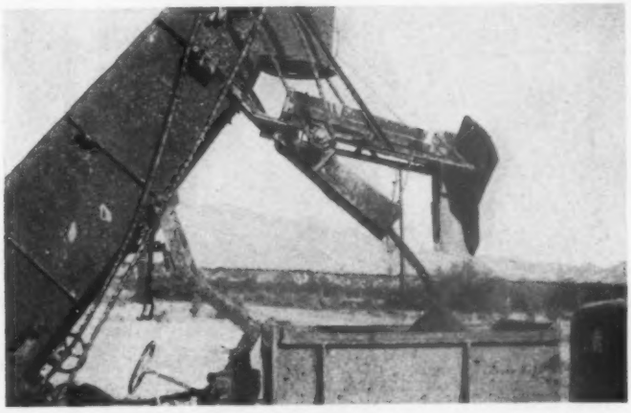
Above, right: An Erickson fork lift truck with 60-inch forks picks up the loaded skid weighing about 2,600 pounds and takes it down into the yard where it is spotted as near as possible to where block will be stacked the following day by yard men. Note electric light on lift truck for night operation. In this picture, left to right, are H. E. Brown, plant foreman, and Don Wade, manager.



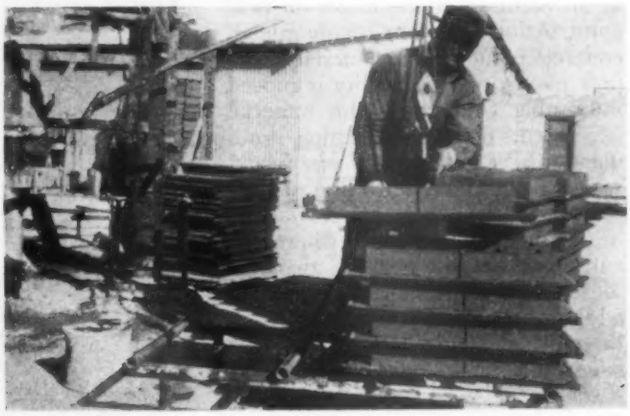


Above, left: View of the Concrete Products Company's plant from the south. In the yard are stored more than 200,000 block of all sizes. Production, with all four crews running is from 18,000 to 22,000 block a day, depending on the sizes being made. In warm weather, a night crew makes an additional 3,000 to 4,000 block per shift.

Above, right: Truck dumps sand into a 5-cubic-yard steel hopper, with reciprocating feeder. Sand is elevated to bin by 5-by 8-inch buckets on a 10-inch belt conveyor. Cement in sacks is stored on platform one foot higher than mixer platform, and around elevator. Mixer is fed a batch of 21 cubic feet of sand through gate in bottom of bin and sacked cement is added. Two pounds of calcium chloride per sack of cement is also added. After water is mixed in the batch is mixed for 3 to 4 minutes and then is dropped onto tables below. A batch is used every 7 to 8 minutes under ordinary conditions.



Sand is loaded on truck in the dry river bed using everything passing a ½-inch mesh screen. Oversize gravel is diverted to the side of the truck, picked up later by loader with screen removed and used for yard fill.



Closeup of method of handling loaded pallets from machine to skids. Loaded pallets are picked up by off-bearer with a fork lift hand-operated hoist-and-tackle outfit which is connected to a small trolley above.

The Application of Air-Entraining Agents in Concrete and Products

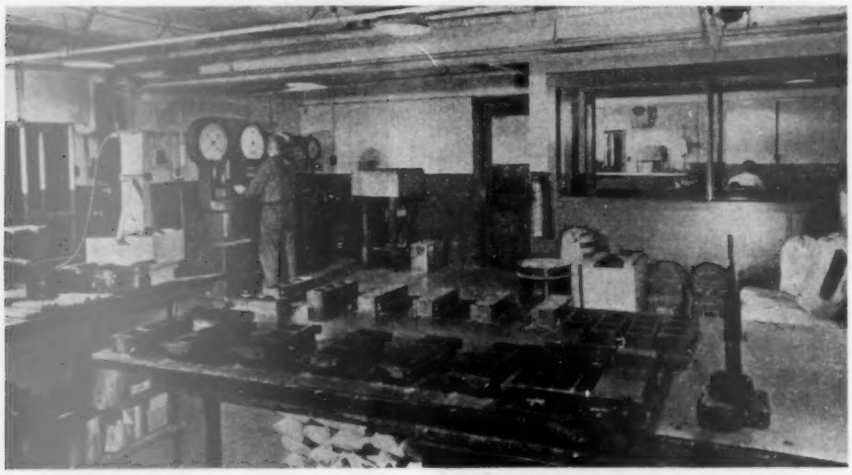
By HENRY M. KENNEDY and EDWARD M. BRICKETT,
Dewey & Almy Chemical Company, North Cambridge, Massachusetts

WHEN the principle of air entrainment in concrete was developed as a means of increasing the resistance of concrete pavements to freezing and thawing it was recognized that air entrainment affects some other properties of concrete adversely as typified for example by decreased density and some loss in strength. At the same time, however, it was found that workability and plasticity were improved and bleeding was reduced. These are properties which are often of great importance in the successful manufacture of concrete and various concrete products.

Darex AEA, an air-entraining agent developed and produced by Dewey & Almy Chemical Company, is now being used in the manufacture of air-entraining cement and as an addition at the mixer on field construction jobs, at ready-mixed-concrete plants and in concrete products plants. Its versatility is indeed interesting. Originally this material was intended as a companion product to TDA; that is as an air-entraining agent and grinding aid for portland cement. However, largely in sections of the country where air-entraining cement was not available some concrete technicians resorted to adding the air-entraining agent at the mixer. The possibilities and merits of this method of obtaining air entrainment were obvious at once. This principle of gauge water addition is justifiably growing in favor with concrete engineers in general and with highway engineers in particular because it affords the simplest means of controlling the air content.

The measurement of the entrained air content is easily accomplished by making unit weight determinations on the green concrete. On the basis of these determinations the quantity of air-entraining agent may be adjusted whenever the air content shows a trend away from the desired figure. The air content of a concrete mix will vary with richness of mix, water content or slump, and with the gradation and percentage of the sand. With normal conditions and average aggregate, air-entraining cement is satisfactory in concrete, but with the air-entraining agent as a separate ingredient there is an advantage in being able to adjust the quantity of the agent to compensate for any changes that may occur in the mix. On one closely-controlled job recently, it became necessary to change the source of the fine aggregate to one that was deficient in fines; yet with the adjustable feature of the air-entraining agent, Darex AEA in this case, the shift in aggregates was made with no change in the air content and with no loss in strength or workability.

From the practical standpoint, an air-entraining agent intended for use as a gauge water addition must not be supersensitive in its effect on air entrainment, and it must be in a form best adapted to easy measurement and application to the mix. If possible, the ideal air-entraining agent also should be harmless to handle. Darex AEA is delivered in a neutral solution ready to use. To facilitate the measurement of Darex AEA into the batch and to minimize and even remove the personal factor



Above: A fully-equipped modern laboratory where air entrainment and other cement and concrete tests are conducted. Right: View in a curing room of experimental laboratory.

in batching, meters have been developed to dispense accurately any predetermined quantity of the air-entraining solution direct from the original container to the batch. The quantity required in each batch is small; in most concrete it amounts to from one to one-and-one-half fluid ounces per sack of cement. In Figure 1 is shown a fully-automatic meter for use on a paver.

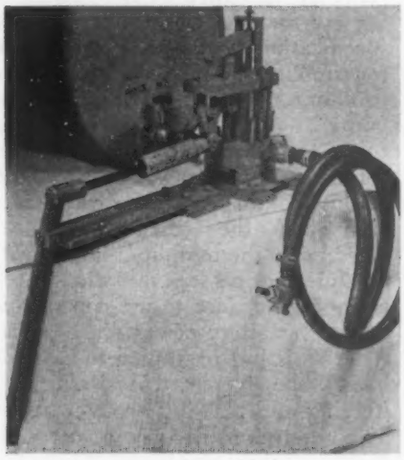


Fig. 1, an adjustable, fully-automatic meter for use on a paver.

This meter is in effect a pump with adjustable stroke. The meter is actuated through one complete stroke by the raising and lowering of the aggregate skip. As the skip reaches the top position the meter pumps a predetermined quantity of the air-entraining agent into the batch; as the skip is lowered the pump plunger again returns to the adjustable stop and draws into the pump cylinder an equal volume of the air-entraining agent in preparation for the next batch. Check valves in the line assure proper direction of flow of the liquid. This type of meter is admirably suited to large jobs such as paving projects where the mixer is putting out a continuous succession of identical mixes. Figure 2 shows a second type of meter especially adapted to ready-mixed concrete plants which can be operated manually or automatically.

The meter is filled and discharged by a two-way valve; one setting of the valve fills this meter and a second setting discharges the air-entraining agent from the meter to the batch. The amount discharged is governed by the setting on the calibrated dial on the side of the meter. This setting can be quickly changed as is often necessary in a ready-mixed concrete plant where successive batches may differ in proportions or volume, or both.

In ready-mixed concrete plants the use of Darex AEA provides a flexible means for controlling the air content of the concrete. Ready-mix plants are called on to produce concrete mixes having a wide variation in slump, cement content, percentage and gradation of sand. These factors influence air content and yet when the air-entraining agent is introduced as a gauge water addition simple adjustments in quantity will compensate for any of these variables, thus enabling the ready-mix operator to control the air content within very close limits. This control is particularly advantageous in cases where the air content of the concrete is specified.

When air entrainment (up to 5 per cent.) is obtained with Darex AEA, either as an interground ingredient of the cement or as a gauge water addition, there is not the loss in strength generally associated with air-entraining concrete. Table I shows the results of typical field tests made on ready-mixed concrete. The data in this table show the extent to which Darex AEA permits a reduction in water content with no change in slump. The reduction in water together with the catalyst in the Darex AEA acts to increase the strength of the cement paste so as to offset the strength loss which naturally results from the inclusion of air in the concrete. The data indicate that, in general, a gain in strength may be expected for mixes leaner than five sacks of cement per cubic yard and that, for the richer mixes, the strength loss is relatively small.

Many ready-mix operators recognize other advantages and possibilities in the use of Darex AEA at the mixer. This material enables plants with limited cement storage facilities to furnish practically all classes of concrete with the use of only two types of cement—normal and high-early-strength. Some plants when putting out lean mixes use a relatively small amount of the air-entraining agent to overcome the inherent harshness of the lean mix. Ready-mix producers find that the increased workability facilitates the handling of the concrete at the job. There are in addition many other ways in which Darex AEA in ready-mixed concrete may be successfully utilized through the ingenuity of the operators.

Likewise, in the concrete products industry the versatility of Darex AEA has been demonstrated repeatedly.

In the production of concrete pipe by the tamp method it is desirable to introduce a limited degree of plasticity to the mix so that the concrete is better compacted and as a result develops better appearance and strength and lower absorption. But, of even greater importance to the pipe manufacturer, this improved compaction means less collapse of the green pipe during the stripping operation with the result

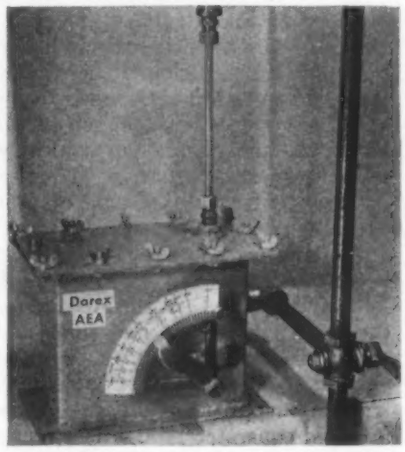


Fig. 2, another type of meter which can be operated manually or automatically.

EFFECT OF DAREX AEA ON CONCRETE COMPRESSIVE STRENGTHS
(Typical Data)

Addition	Sacks Cement cu. yd.	W/c by Weight	Slump Inches	Weight/ cu. ft.	Compressive Strength 7-Day	Compressive Strength 28-Day
None	3.90	.753	1.25	150.0	1500	3130
Darex AEA	4.05	.610	2.00	144.8	2760	3930
None	4.40	.710	3.50	152.1	1580	2400
Darex AEA	4.60	.636	3.00	146.8	2480	3540
None	4.93	.602	2.00	150.0	2640	4495
Darex AEA	5.06	.522	2.13	145.0	3130	4450
None	5.53	.575	3.00	152.1	3075	4850
Darex AEA	5.53	.510	3.00	146.0	3100	4930
None	5.79	.550	2.00	153.0	3120	4600
Darex AEA	5.87	.483	2.00	147.0	3365	4670
None	6.00	.530	3.75	147.5	2940	4730
Darex AEA	6.00	.490	3.25	143.6	3225	4875
None	6.60	.496	5.00	152.9	3600	5300
Darex AEA	6.50	.467	4.50	147.7	3650	5270

that the over-all increase in the day's production is appreciable, particularly when the grading of the aggregate is temporarily off on either the coarse or the fine side. It should be pointed out, however, that the degree of plasticity must be kept within bounds. If the plasticity is too great the mix becomes mushy and tamping sticks are broken, thus hindering production. The amount of air-entraining agent required is about one-half the amount which would normally be used in average concrete and operators find that with changes in aggregate grading it is desirable to adjust the amount of the air-entraining agent to maintain maximum benefits.

In the packer-head process of concrete pipe manufacture, the principle of fabrication is entirely different. It has developed here that the best results are obtained by using approximately twice as much of the air-entraining agent as would be used in average concrete. The use of Darex AEA in this type of pipe manufacture gives sharper corners and edges on the pipe. It also gives better strengths and, in the manufacturing process, it acts to reduce the suction between the pipe and the forms which, at times, is great enough to give serious trouble during the stripping operation. In reinforced-concrete pipe there is a tendency for the packer head to stretch the reinforcing cage longitudinally; then when the forms are stripped the cage springs back to shape and cracks the green pipe. The plasticizing action of the air-entraining agent enables the concrete to flow more readily around the reinforcing wire so that dislocation of the wire is minimized.

Further illustrations of the advantages to be gained by discreet use of Darex AEA in concrete products are to be found in the concrete building block industry and the cast-stone industry. In these two industries the advantages sought through the use of the air-entraining agent differ considerably and the quantities of the agent required for best results are different.

In the case of the building block industry Darex AEA is used to improve surface texture, reduce absorption, increase strength and to practically eliminate green breakage and culls which ordinarily would result with adverse changes in aggregate gradation. Because of the nature of the block mix best results are attained with the use of a larger quantity of the agent than would be required in average concrete. The optimum quantity is determined by actual performance and is dependent on the type of aggregate, type and condition of equipment, etc. Only by being able to adjust the quantity of the air-entraining agent can the maximum benefits be obtained.

In the case of cast stone actual operation has shown that the use of Darex AEA will: (1) plasticize the mix and thus facilitate complete filling of the sand mold for perfect reproduction of pattern, (2) reduce bleeding and segregation and (3) improve the durability of the finished product. These improvements can be accomplished with little or no loss in strength. As in paving concrete the optimum air content seems to be between 3 and 5 per cent. Because of the wetness of the cast-stone mix and the large proportion of fines in the aggregate the amount of Darex AEA required is very much less than in paving concrete. By adding the agent as a separate ingredient it is possible to control the air content in the cast-stone mix, varying the quantity as required for different types of aggregate such as glacial sand and crushed marble, as well as compensating for changes in these aggregates.

Concrete cribbing and concrete curbing are two products which are exposed to especially severe conditions of frost action. Darex AEA is now being used to advantage in these products to increase resistance to this weathering. The effectiveness of the treatment is indicated by the results of freezing and thawing tests conducted on specimens cut from concrete cribs made with and without the air-entraining agent. A section cut from a crib made without the air-entraining agent disintegrated completely after ten cycles of freezing and thawing in a calcium chloride solution, whereas a similar section from a crib made with Darex AEA treated concrete showed only very slight spalling after 45 cycles. The two concretes were directly comparable in cement content, consistency and strength. In addition the increased plasticity of the treated concrete makes it possible to get a better finish on the units. The over-all result is a quality product.

In casting concrete products made with light-weight aggregate our air-entraining agent has been used to bring about beneficial effects on both production and product. The light-weight aggregate by its ragged irregular shape is inherently harsh so that placing and finishing present real problems. By using a quantity of the air-entraining agent nearly double the amount used in the average concrete, the mortar matrix is sufficiently plasticized to carry the harsh light-weight aggregate, thus reducing segregation and improving placing and finishing. At the same time the unit weight of the concrete is lowered by five or six per cent. and this is all accomplished with little or no loss in strength.

Since June, 1944, when Darex AEA was accepted by the American Society for Testing Materials under specification C-175-44T, more than four million cubic yards of concrete containing Darex AEA have been poured. A large quantity of this concrete was used in highway and commercial plant pavements. Its use in this type of work improves placeability of the concrete, reduces bleeding to the minimum and speeds up finishing, all items of direct economic significance to the contractor.

The versatility of entrained air in concrete is just beginning to be realized. The increased resistance to freezing and thawing brought about by air entrainment is now accepted. But the other attributes of air entrainment as exemplified by the illustrations above are a real challenge to concrete operators. In general air entrainment is coming to be recognized as an increasingly important tool in the concrete industry. There can be no doubt that the discreet use of an air-entraining agent under proper control will bring new standards of concrete production and quality, but the necessity for control cannot be overemphasized.

Kentucky Producer

(*from page* 141)

seven mixer trucks—Jaeger and Blaw-Knox—ranging up to 2½ cubic yards in capacity. The record for a single day's output is 500 cubic yards.

An allied concern under the same management, Middle States Bituminous Corporation, operates a bituminous concrete plant on adjoining property, using the same material-supply facilities employed by the ready-mixed plant. Graham Webb is president of both companies. H. V. Anderson is vice-president and general manager, and George W. Cushing is vice-president in charge of operations.

What do you want to know about the ready-mixed concrete industry or about concrete blocks, pipes, etc.? The Concrete Industries Yearbook can probably tell you.

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'INCOR' SAVED

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PER CU. YD. OF CONCRETE IN PLACE

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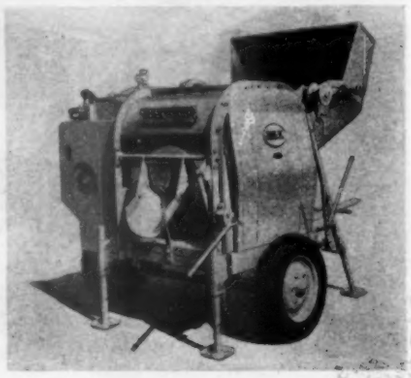
NEW MACHINERY and SUPPLIES

● Streamlined Mixer

First of the Chain Belt Company's streamlined Rex mixers to be in actual production is the new Rex 16S. Features include a completely redesigned chassis—low overall height, wide wheel tread and



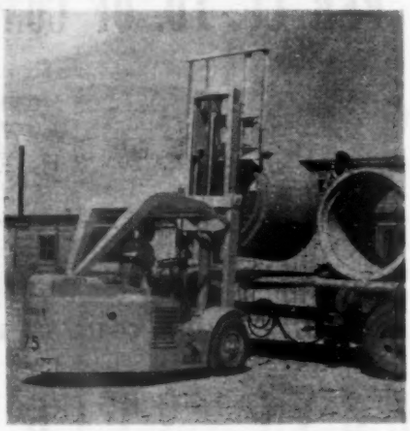
Redesigned mixer.

low center of gravity. The machine is said to be easy to park, tow and spot. New convenient controls, grouped on one side of the machine, a new water system and a new drum design reportedly have resulted in easier operation and better mixing qualities.

The redesigned 11 and 16S meet the new A.G.C. standards. The 11S is available in either a 2- or 4-wheel mount-end discharge type. The 16S is mounted on a 4-wheel chassis, side- or end-discharge types. Innovations include the relocating of lubrication fittings so that they are all available for convenient greasing; a choice of air- or water-cooled motors; a redesigned water system and a new slip-stream shimmy skip.

● Forked Lift Truck

A forked lift-truck of 7,500 pound capacity has been put on the market by



Three-wheeled truck.

the Hyster Company of Portland, Ore. Known as the "Hyster 75", this three-wheeled unit employs a telescoping hy-

draulic lift mechanism which will attain a maximum height of 10 feet. Among the many commodities which the Hyster 75 is capable of loading, unloading, and transporting, are concrete products and bulk materials on pallets. The truck has a 40-hp. engine, single rear-wheel trunnion-type steering, and a minimum overall height of 83 inches. The telescoping lift mechanism can tilt 4 degrees forward and 12 degrees to the rear. An overhead member supporting the uprights also serves as a safety guard for the operator.

● New Batching Setup

A new development for aggregate producers and road builders announced by the C. S. Johnson Co. of Champaign, Ill., provides for dual batching of aggregates. The 100-cu. yd. aggregate bin, a portable section type, is divided into three compartments, with hinged leg sections for fast erection and moving.

Two multiple material batchers of 34E paver-batch capacity, so located that one operator can handle both, are discharged simultaneously into the separate compartments of two-batch trucks. This arrangement, the company points out, requires only one spot at the aggregate plant and saves in batching cost through reduced manpower and time at the batching plant.

Dual cement batchers are also provided for in Johnson bulk cement plants, including the Dutch Mill, the portable section and the Twin Silo units. The latter has been recently developed to provide storage capacity up to 1,610 barrels of cement; it is the largest portable unit in the Johnson line.

● Miniature Loader

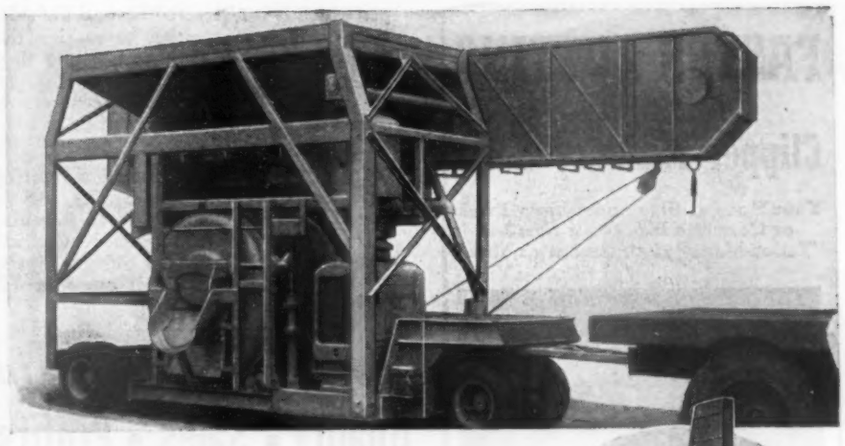
A compact, light weight fork truck, designed to lift, carry, stack and tier unit package loads weighing up to 1,000 pounds, has been introduced by the Clark

Loader inside truck.

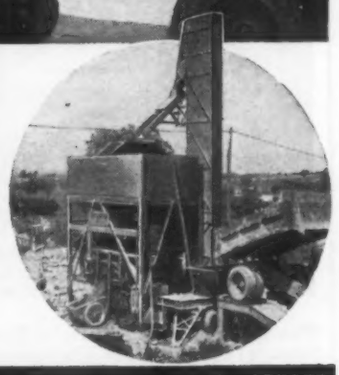
Tructractor Company, of Battle Creek, Mich. Known as "Trucloader", this unit's size and small turning radius of 57 inches are said to make it maneuverable in confined places, such as in going in and out of trucks, trailers or box cars.

● Movable Conveyor

A portable conveyor for concrete paving construction is presented by the Blaw-Knox Company of Pittsburgh, Pennsylvania. This conveyor rides the forms ahead of the concrete paving spreader and finishing machine, receives the concrete from truck mixers, and deposits the concrete within the paving area. It receives the concrete in a collecting hop-



ERIE *Strayer* PORTABLE CONCRETE PLANT combines in one portable unit — 2 or 3 compartment storage bin—bucket elevator—AggreMeter unit to weigh batch in 15 seconds — water tank and proportionater—batching meter—pre-mixing cement feeder. Available in 3 sizes. Write for booklet.



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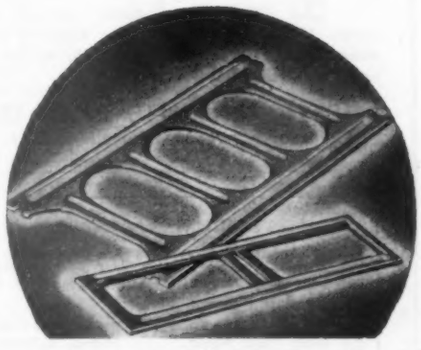

An Addition to the

"COMMERCIAL"

Line of Pallets for the Concrete Block Manufacturer

See the new "Modular Type" Cored Steel Pallets at the N. C. M. A. Exposition this month.

These new pallets will make possible the production of blocks 15⅝ inches long. With ⅜-inch mortar joint, the blocks will lay up on 16-inch centers.

Pallets formed of cold pressed steel with mortar grooves and strength-imparting ridges in the cross ribs. Furnished in 4", 6" and 8" rectangular core and 8", 10" and 12" oval core.

The "Modular Type" pallet will augment the styles and sizes already in Commercial's large line of pallets for the concrete block industry. Write for catalog.

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YOUNGSTOWN, OHIO

FASTER CUTTING
...with
Clipper Masonry Saws

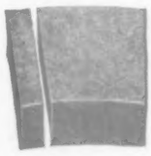
Your Special Size and Shape Brick or Concrete Block can now be "Tailor-Made" at a moment's notice!

The new Clipper Multiple Cutting Principle makes possible faster cutting of every masonry material regardless of hardness.

Here are a few typical examples of the speed and accuracy with which concrete products and fire brick can be cut.

This concrete block, converted into a special size, was cut completely in two in 19 seconds.

One of the many intricate cuts performed on first quality clay brick for heat treating furnaces —made in 8 sec.



Rotary Kiln Blocks, cut to size for "key" bricks in rotary kilns, require only 10 sec. for completion of cut.

Basic refractories for steel furnaces or cement kilns must be accurately installed. This magnesite brick was cut in 12 seconds!

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per which is cantilevered beyond the side. Here it is in a position to receive the discharge from truck mixers while they are parallel to the longitudinal axis of the paving operation. The concrete is conveyed laterally and deposited.

David Wright has accepted a position as sales representative of the Besser Manufacturing Company at Phoenix, Arizona. Mr. Wright formerly was affiliated with the Chicago office and the Washington, D. C., district office of the Portland Cement Association.

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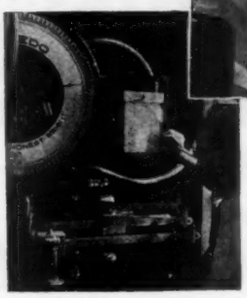
Install [SC]Z PRECISION CONCRETE CONTROL **It Includes**

Moisture Meter

Makes a test for moisture content of fine or coarse aggregates in ONE minute. Accurate to ¼%.



Compensator

Delivers correct DRY weight of wet aggregates and ADDED water. Makes a graph record of EVERY BATCH.

[SC]Z **CONTROL produces *uniform concrete*. Is always approved by concrete engineers. Has definite sales value. Write for our booklet "Profits in Concrete."**

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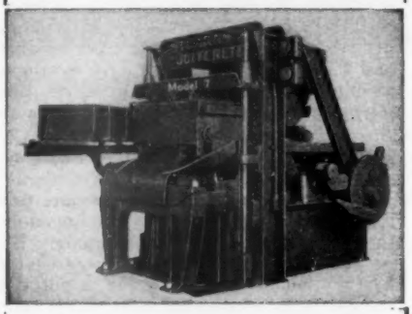


Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.

Hobbs block machines, Anchor tampers, Anchor Jr. strippers, Stearns power strippers and Joltcrete, Stearns mixers and Cast Iron and Press Steel pallets, Straublox oscillating attachments, etc. Repair parts for: Anchor, Universal, Stearns, Blystone mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Friel, Manager Columbus, Ohio

WANTED

10 S Jaeger Tilt Type Mixers.

AMERICAN WILBERT VAULT CORPORATION
Forest Park Illinois

WANTED

Anchor or other standard make machine for making concrete tile, 5 x 8 x 12 size.

STEELE BROTHERS
Dorchester, Nebraska

WANTED TO PURCHASE

One "Commercial" type "DUNBRIK" concrete brick machine—Give condition, location, price and availability. Write:

• •

Box No. 37, Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

CONCRETE PRODUCTS PLANT FOR SALE

Owner retiring will sell going business in Central Illinois city of 70,000. Redi-mixed batching plant with six high dump mixer trucks. Two block machines. Pipe machine manufacturing 12" to 36" culvert pipe. Joist machines, chimney block machine and numerous other equipment. Would consider separating.

Box No. 36, Pit and Quarry Publications
538 South Clark Street, Chicago 5, Illinois

HYSTER

Industrial Trucks do more work...

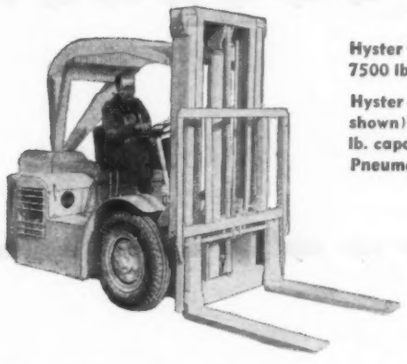
YOUR BUSINESS can cut handling costs and increase net profits when a Hyster industrial truck lifts, transports and stacks materials.

This mechanical expediter on wheels does an amazing amount of work—*saves time and money*—releases manpower for more productive jobs in factory, field or warehouse.

Hyster models range in capacity from 2000 lbs. to 30,000 lbs. All models are *pneumatic tired,* gasoline powered, engineered and built for fast, efficient, enduring service. Illustrated literature sent gladly . . . Distributor sales and service in principal cities.

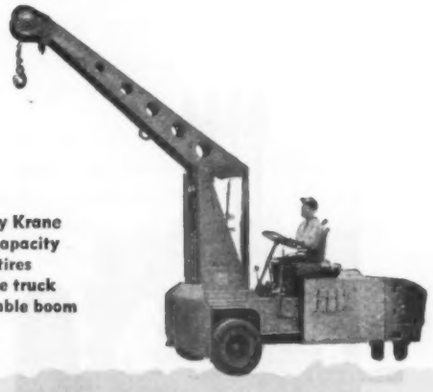
Hyster "20"
2000 lb. capacity
Pneumatic tires

Hyster "40"
4000 lb. capacity
Pneumatic tires



Hyster "75"
7500 lb. capacity

Hyster "150" (not shown) has 15,000 lb. capacity
Pneumatic tires



Hyster Karry Krane
10,000 lb. capacity
Pneumatic tires
Mobile crane truck with adjustable boom

Hyster Straddle Truck "M"
12,000 lb. capacity

Model "MH" (not shown) has 30,000 lb. capacity
Pneumatic tires

HYSTER COMPANY

2926 N. E. CLACKAMAS ST., PORTLAND 8, OREGON
1826 NORTH ADAMS STREET, PEORIA 1, ILLINOIS

Branch Offices:

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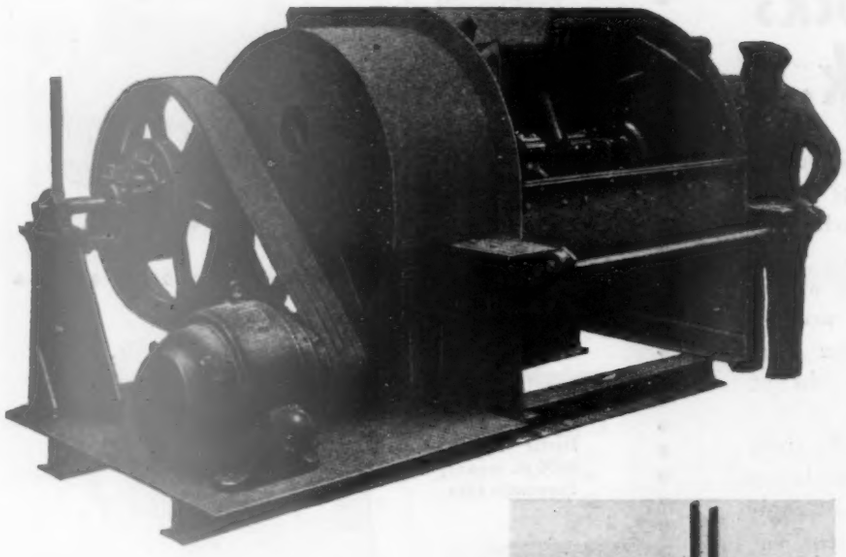
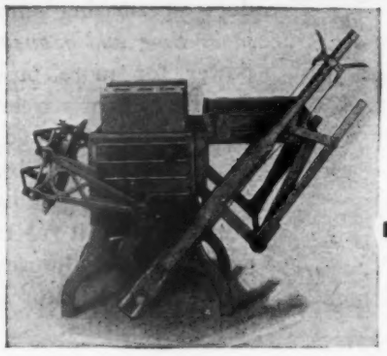
WORLD'S LARGEST MANUFACTURER OF PNEUMATIC TIRE LIFT TRUCKS AND STRADDLE TRUCKS

our

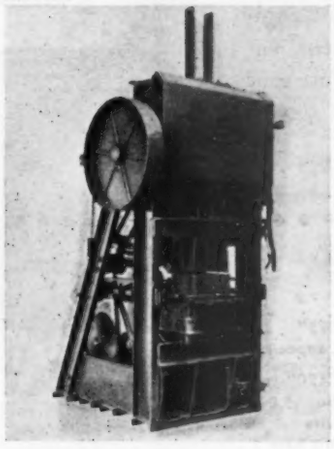
40 YEARS OF PROGRESS in Multiplex Machinery for



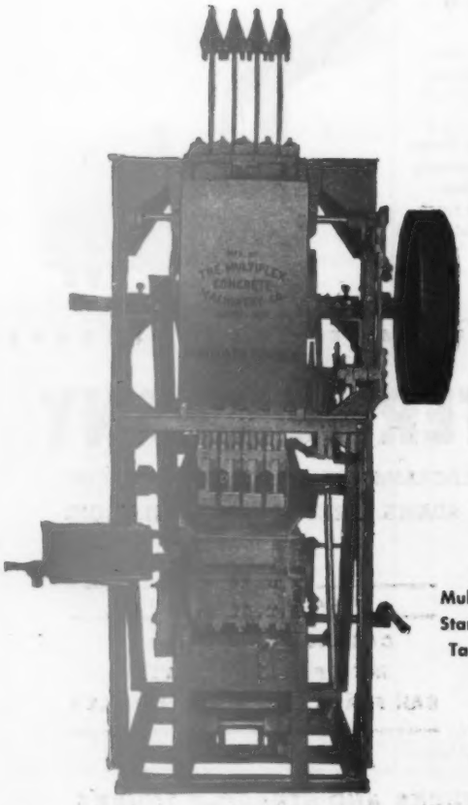
Multiplex
Multi-Mixer



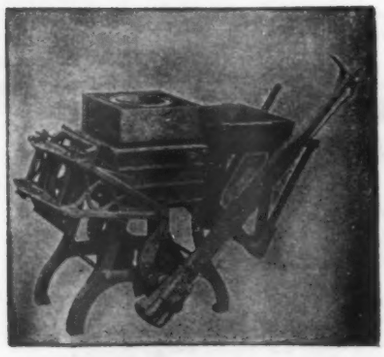
Multiplex
Double Stripper



Multiplex
Super
Tamper



Multiplex
Standard
Tamper



Multiplex
Flue Block
Machine

for your

PRODUCTION ECONOMY

Concrete Manufacturers

Forty years of experience in manufacturing machinery exclusively for the concrete products industry with precision machinery and operating economy as the primary objective, have produced the Multiplex Machines shown here, a few of our complete line.

MULTI-MIXER

MULTI-MIXERS are sturdy and well-built to withstand the hard usage in concrete products plants. Furnished in either the motor drive as shown, or in geared head drive eliminating pulleys and clutches. Designed for low mixing cost and low upkeep cost, due to the special arrangement of the reverse screw type mixing action. Built in sizes from 5 to 40 cu. ft. and larger with either end, side or bottom discharge. Abrasive-resisting steel liners and chromium-plated liners are also available.

DOUBLE STRIPPER

Model C Double Stripper makes two blocks, either plain or faced design, with one operation. Will make all sizes from 3 to 12 inch wall thickness and standard 16 inch length. It is also convertible for random ashlar sizes and many of the larger plants are using this machine for random ashlar work and special sizes. A production machine making a remarkably uniform product that will earn its keep — and then some.

SUPER TAMPER

SUPER-TAMPER is a heavy-duty machine with an all-steel welded frame for extra strength. Produces 8 x 8 x 16 units as fast as six per minute. Positive smooth top strike-off assures a finished unit. Will make brick, tile or block and is supplied in either 4-bar split type or 8-bar type. Low production cost is assured by the positive feeder, positive and uniform tamping and positive strike-off. Precision engineering and manufacture insures extremely low maintenance cost.

STANDARD TAMPER

STANDARD TAMPER, a universal machine, makes both plain and stripper or face blocks on one base. Can be supplied as either a 4-bar or 8-bar tamper. Also obtainable as a hand-operated stripper and strike-off machine to which power stripping may be added at any time. Constructed with an all-steel welded frame and a heavy-duty mold-box, this low price unit may be converted later into a semi-automatic machine. Changes can be made easily and quickly making it the practical outfit for any plant.

FLUE BLOCK MACHINE

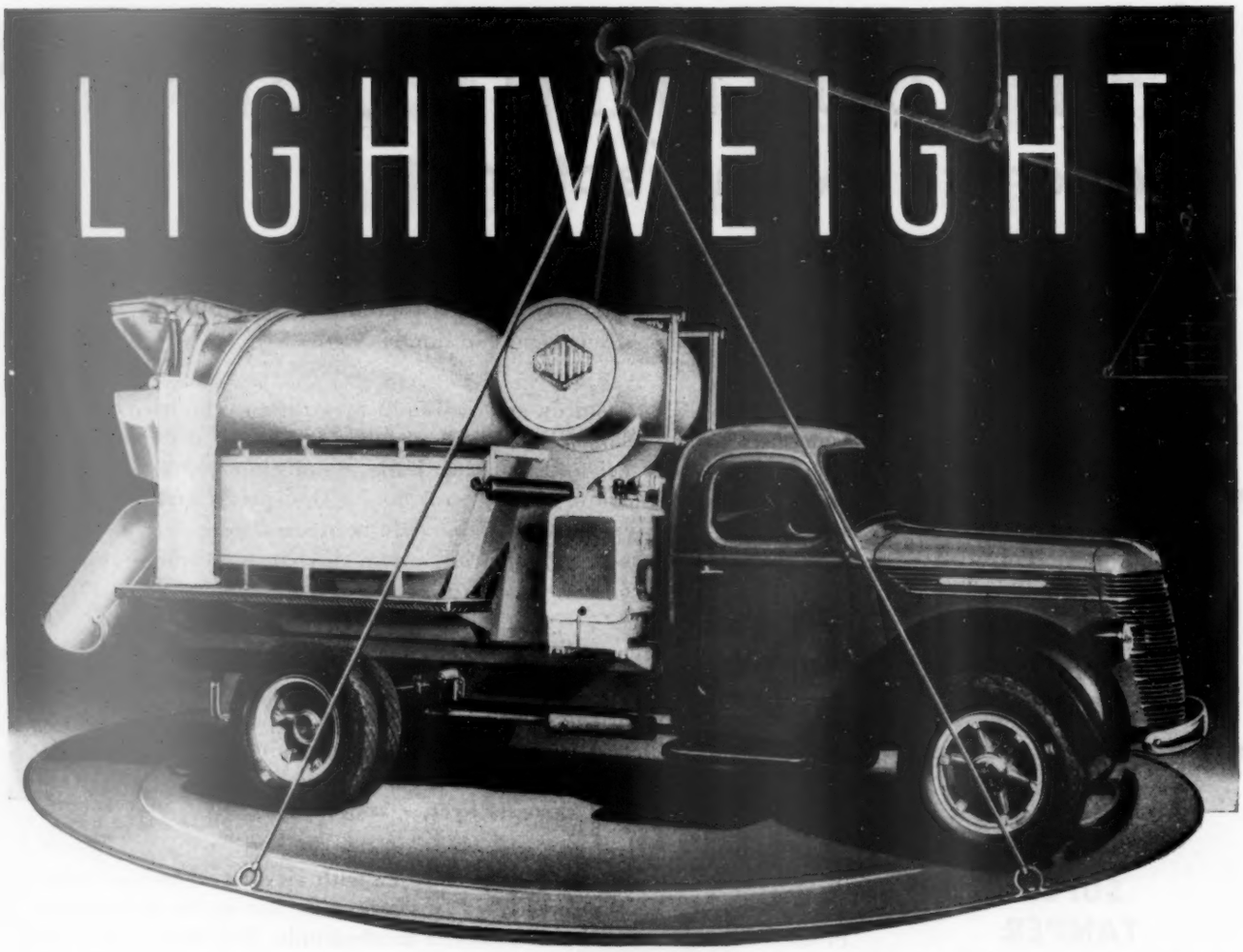
FLUE BLOCK MACHINE makes ventilated, solid or lightweight units for flue liners, including all attachments for ventilator and stove pipe openings. A great money-maker, it will increase your profits as it, and the other Multiplex machines, are doing in thousands of plants throughout the United States and abroad.

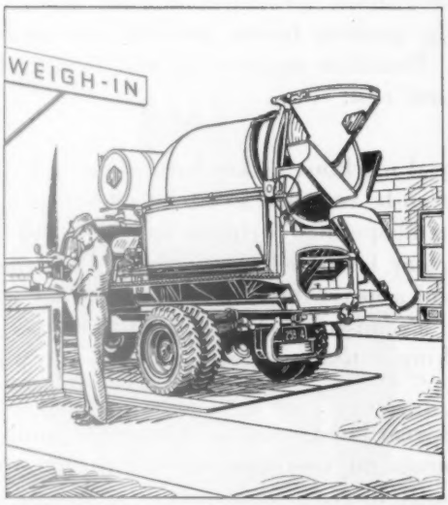
THE MULTIPLEX COMBINATION
- Beauty In Block
- Low Cost Production
- Simple Operation

WRITE FOR your copy of Catalog No. 29 showing the complete line of Multiplex equipment for modern concrete manufacturers.

MULTIPLEX CONCRETE MACHINERY
ELMORE, OHIO

LIGHTWEIGHT





1,000 Lbs. LESS DEAD WEIGHT!
"Weigh-in" a Smith-Mobile No. 3 Machine. Even with a FULL PAYLOAD, you'll find it is about 1,000 lbs. lighter than any other 3-yd. truck-mixer.

Carries a FULL PAYLOAD — yet Stays within Load Limits!

Why deliver only a partial payload in a heavy truck mixer when you can deliver a FULL payload in a heavy duty No. 3 Smith-Mobile without exceeding the maximum load limits specified by the majority of states?

Lightweight, streamlined design, with deadweight reduced to a minimum, this sturdy 3-yard truck mixer nevertheless maintains the well-known Smith rugged construction. Mounted on an economical 2-axle truck, and about 1,000 lbs. lighter than competitive 3-yard mixers, it easily stays within stringent load limits, *even when loaded to capacity*.

And the No. 3 has all other time-tested Smith-Mobile features — HIGH DISCHARGE . . . CONTROLLED DISCHARGE without segregation . . . VISIBLE MIXING . . . FEED CHUTE CHARGING . . . etc. Write today for a copy of Smith-Mobile Catalog No. 198-D.

The T. L. SMITH COMPANY
2887 North 32nd Street Milwaukee 10, Wisconsin, U. S. A.

No.3 SMITH-MOBILE

FILE THIS UNDER . . .

AIR ENTRAINMENT

For improved plasticity and resistance to freezing and thawing

Darex AEA*

*Reg. U. S. Pat. Off.

What is Darex AEA? Darex AEA is a water-soluble air-entraining agent that comes ready to use for addition at the mixer. With Darex AEA, the amount of air entrained in concrete can be controlled, so that after an initial mixing period the air content of the concrete remains relatively uniform.

Easy to use Darex AEA comes ready to use in solution form. There is no mixing—no harsh chemicals required. The use of measured volumes of Darex AEA gives constant, uniform results.

Economical to use Darex AEA is inexpensive and costs only a few cents per cubic yard of concrete to use.

Is not super-sensitive Small variations in the amount of Darex AEA used are not critical and do not greatly affect the air. This makes for safe use, even with unskilled labor.

Gives improved plasticity Darex AEA works on the sand constituent of concrete as an air-entraining agent and does not react with the alkali in the cement. It gives plasticity and workability, which permit substantial water cuts, make the concrete easy to place, tend to reduce bleeding, and eliminate segregation of the aggregates.

Gives improved durability Darex-AEA-treated concretes containing 3-6% entrained air give remarkable resistance to freezing and thawing.

Proved in use Darex AEA has already been used in over four million cubic yards of concrete. This figure is based on sales to consumers.

Use DAREX AEA with confidence wherever air-entrained concretes are specified.

WRITE FOR BOOKLET AND MANUAL ON THE USE OF DAREX AEA

IN AIR-ENTRAINED CONCRETES IT'S THE *Controlled Air* THAT COUNTS

DEWEY AND ALMY CHEMICAL COMPANY
CAMBRIDGE 40, MASSACHUSETTS

Your

NEW CONCRETE BLOCK PLANT

ECONOMY OF UNIT CONSTRUCTION . . .

YET COMPLETE ELASTICITY OF DESIGN

Engineered BUTLER *Design*

For many years BUTLER engineers have assumed the design of the entire Concrete Block Plant, — even to arrangement of office space . . . Today, born of long experience, BUTLER engineers have simplified the complex problems of Block Plant planning with a series of flexible units fundamental to every installation. Because of BUTLER ENGINEERED DESIGN, those units are readily adaptable to any site, any material delivery condition and any production demand. For complete flexibility in plan, with economy of unit manufacture, consult BUTLER engineers about your Concrete Block Plant design.

BUTLER BIN CO.

OF WAUKESHA, WISCONSIN

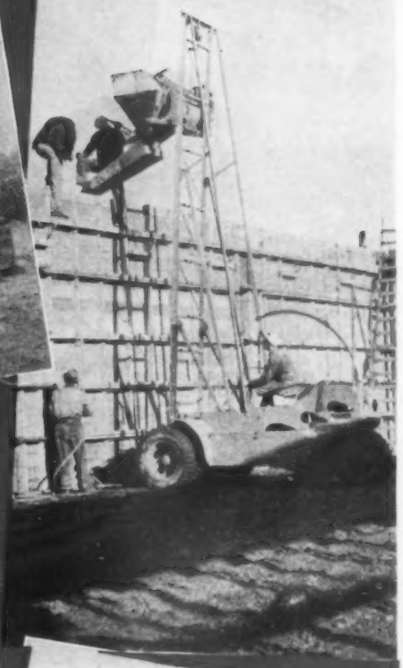
SCOOPMOBILE

MOBILE • *Efficient* • MONEY MAKER

SOLVES YOUR LOADING, LIFTING & MATERIAL HANDLING PROBLEMS

Standard Scoopmobile may be used with scoop or any number of attachments, all of which are interchangeable. Loads bulk materials, handles concrete products, pours concrete, lifts heavy items, ideal for coal and cinders. Extremely mobile and maneuverable. Prompt delivery. Scoopmobile is a complete unit and not an attachment. Has wide variation of uses.

Write for Detailed Information



OTHER MIXERMOBILE PRODUCTS

MIXERMOBILE — Portable Concrete & Elevating Plant
BUGGYMOBILE — Powered Concrete Buggy
DUMPMOBILE — Moves and Dumps Bulk Materials
SCOOPMOBILE — Scoops, Lifts, Moves and Loads
HOISTMOBILE — Mobile Hoist with Boom
TOWERMOBILE — Portable Truck Mounted Elevating Unit
WAGNER MIXER — Complete Mobile Concrete Mixer
WAGNER TRUCK CRANE — Exclusive Patented Folding Boom

DISTRIBUTORS

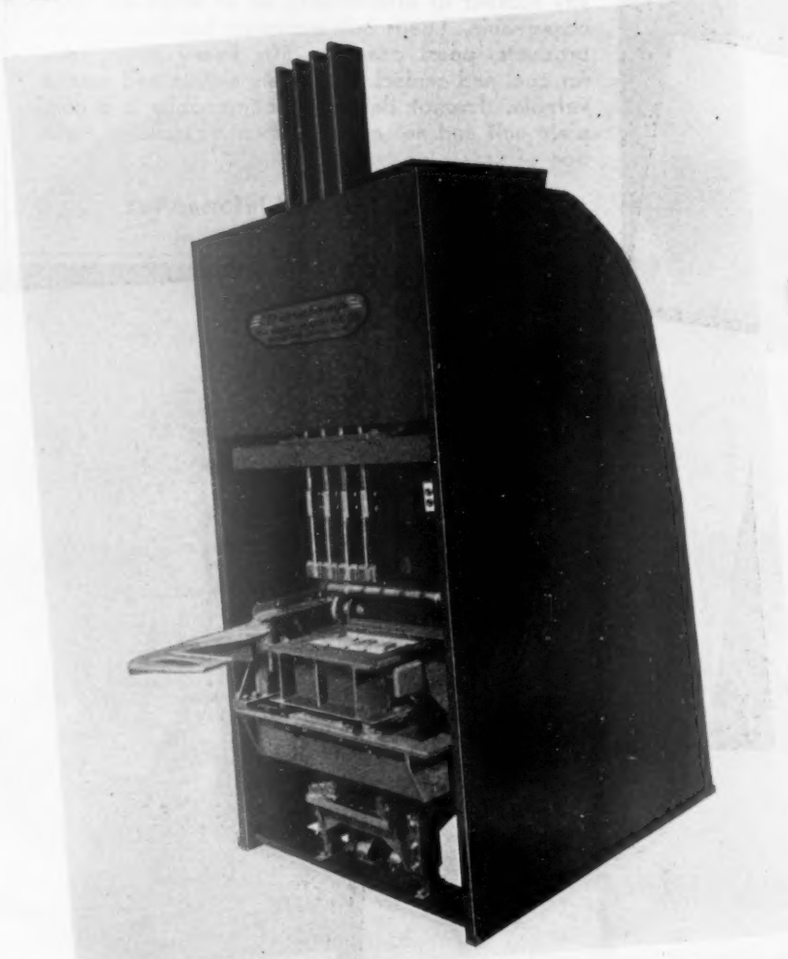
West of Mississippi River — MIXERMOBILE MANUFACTURERS, 6855 N.E. Halsey St. • Portland 16, Oregon

East of Mississippi River — MIXERMOBILE COMPANY, INC., 608 South Hill St. • Los Angeles 14, Calif.

Here's

GOOD NEWS

for Concrete Block Producers



It's THE Machine

for

FAST PRODUCTION
BLOCK UNIFORMITY
OPERATING ECONOMY

KENT VIBRA TAMP

The new KENT Vibra Tamp Concrete Block Machine is a sure-fire "head-liner" for modern-minded producers.

Material is vibrated into mold box and, with a heavy eight-bar tamper, a dense block is assured.

The Vibra Tamper cam-system delivers block on automatic take-off at the rate of five blocks per minute.

AND, this machine is simply and easily controlled—just drop the pallet and push a button

The Vibra Tamp has many new features. Write for further details.

THE KENT MACHINE COMPANY
Cuyahoga Falls, Ohio

REX HAS A
"LIVE"
MIXING

—NOT A
"DEAD ENDING"
ACTION

Have you heard about "Hi-Lo" mixing?

"Hi-Lo" mixing, the patented "uphill" mixing action provided only in Rex Hi-Discharge Moto-Mixers, gives you the thoroughly and uniformly mixed concrete you want—in less time *regardless of slump.*

Rex Moto-Mixers mix in the discharge direction. And, as shown in the diagram above, this action provides plenty of active mixing space the full length of the drum. It's a complete, thorough, end-to-end, top-to-bottom mixing action. Batch is not crowded to the lower end of drum and simply allowed to rotate undisturbed.

Note, too, the location of the Rex water nozzle. Water is discharged at the point where the blades form a furrow in the batch . . . exactly the right place to assure fast, thorough distribution throughout the entire batch.

For all the facts on the "Hi-Lo" mixing action and the many other outstanding features of Rex Hi-Discharge Moto-Mixers, send for your copy of Bulletin No. 467. Address Chain Belt Company, 1604 W. Bruce St., Milwaukee 4, Wis.

REX

CHAIN BELT COMPANY of MILWAUKEE

CONSTRUCTION MACHINERY

PUMPS PAVERS PUMPCRETES MOTO-MIXERS MIXERS

The Power Lift Truck

Ericksons have stamina, power, speed and maneuverability. Big pneumatic tires on drive wheels. No paved runways required. All steel welded construction. Speedy hydraulic platform raiser. Simple controls. Write for complete details.

ERICKSON

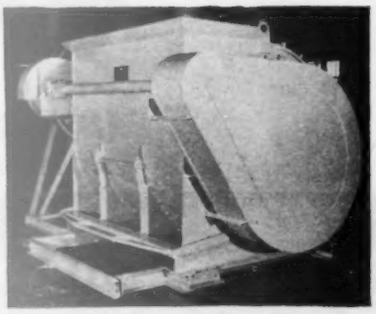
LIFT TRUCKS, PLATFORM TRUCKS, HIGH AND LOW LIFT FORK TIERING TRUCKS.

For Fast Movement of Large Quantities of Block

ERICKSON SPECIAL EQUIPMENT MFG. CO.

109 14TH AVE. N. E. • • MINNEAPOLIS, MINN.

Answers YOUR Need!



This powerful, heavy-duty CONCRETE MIXER is equipped with two spiral blades, hardened liners and precision roller bearings . . . capable of meeting every production requirement in the efficient operation of your Block Plant.

Shipment in 2 Weeks

after receipt of order

Dealer Territories Available

POWER EQUIPMENT CONSTRUCTION CO.

PAYNE TERMINAL, P. O. Box 472, SARASOTA, FLORIDA

T.C.

Woven Wire SCREENS

Half-Century of Dependability

For ACCURACY ENDURANCE ECONOMY

SQUARE OPENING
OBLONG OPENING
•
Standard and Special Weaves

TWIN CITY IRON & WIRE CO., St. Paul, Minnesota

The "Quinn Standard"

FOR CONCRETE PIPE

The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 30 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

Quinn Heavy Duty Pipe Forms

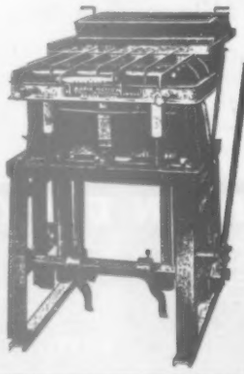
For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for any diameter pipe from 12 to 84 inches—tongue and groove or bell-end pipe at lowest cost.

WRITE TODAY

Complete information, prices and estimates sent on request. Also manufacturers of Quinn Concrete Pipe Machines.

QUINN WIRE & IRON WORKS 1027 12TH ST. BOONE, IA.

RAPID ACTION!



Concrete Brick and Block Machine

A complete plant in itself. Makes a perfect brick and block with less investment in equipment.

Write for circular with prices

DUNCAN MACHINE WORKS

1113 Story St. Boone, Iowa

CONCRETE BURIAL VAULTS

America's Finest Molds and Lowering Device

•

TERRITORY FRANCHISES

BERG VAULT CO.

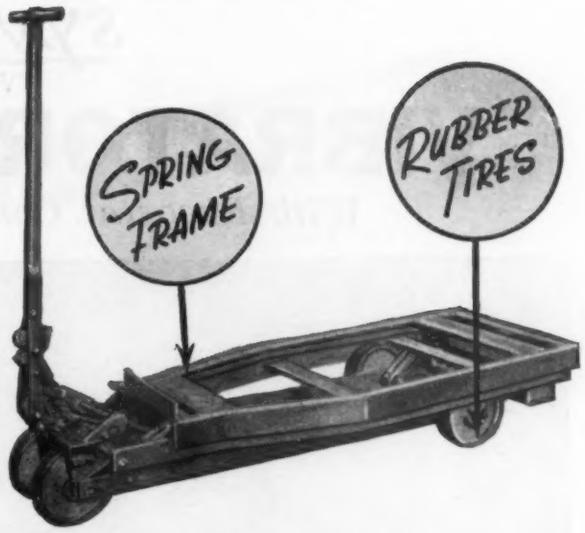
EQUIPMENT DIVISION
1620 LUCAS HUNT RD.
ST. LOUIS, MO.

UNIVERSAL CONCRETE PIPE Widely Available

26 Universal plants in strategic locations in the nation afford ready availability of pipe in stock sizes to 108" — larger sizes quickly provided on special order.

Speed is the order of the day in construction — and Universal Pipe is one material ready for use TODAY!

UNIVERSAL CONCRETE PIPE CO.
Columbus 15, Ohio

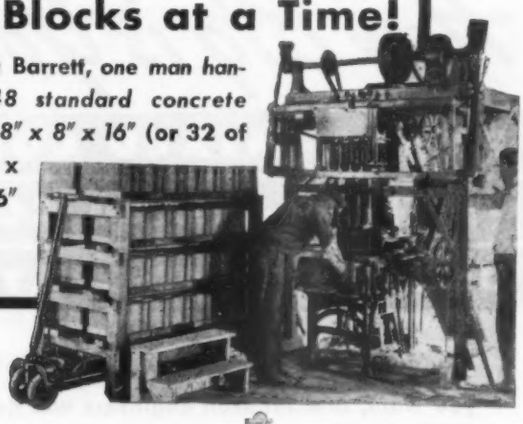


"SOFT" HANDLING FOR CONCRETE BLOCKS!

From machine to curing room and right through storage, the handling of blocks is a "soft" job with Barrett Lift-trucks. Breakage is eliminated by the shock-reducing rubber tires and super spring frame. The load is *raised* with a single downward sweep of the handle . . . *lowered* gently under control of a hydraulic check. Make a "soft" job of handling concrete blocks. See a Barrett engineer . . . or write for descriptive circular.

48 Blocks at a Time!

With a Barrett, one man handles 48 standard concrete blocks 8" x 8" x 16" (or 32 of the 8" x 12" x 16" size).



Want electric drive?

THE POWEROX has it!

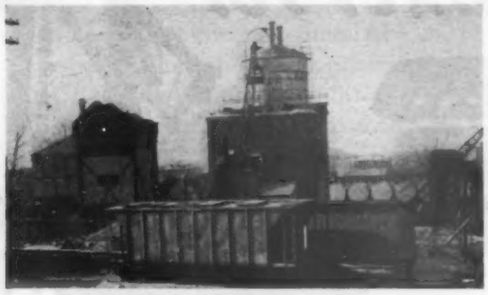
Cuts handling time and effort to an absolute minimum. Hand lift—electric drive, push-button controlled. Automatic brake, dual motors, rear wheel drive. PowerOx provides real economy without a large investment. Write for details today!

BARRETT-CRAVENS COMPANY
3251 West 30th Street • Chicago 23, Illinois
Representatives in All Principal Cities
Canadian Licensee: S. A. Armstrong, Ltd., Toronto, Canada

Barrett Handling Equipment

BARRETT
ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT

How to CUT CEMENT COSTS



1. Buy in BULK
2. Handle by AIR
3. Use the ROBINSON AIR-ACTIVATED SYSTEM

There's no need to tell you about the advantages of buying cement in bulk. So, we'll skip to Reason No. 2 . . . Handle bulk cement by air. It's faster, cleaner and more flexible. It involves less maintenance. As for Reason No. 3 . . . The ROBINSON CONVEYING SYSTEM "floats" rather than blasts the cement through the pipe. It has high capacity over long distances, up steep grades and around bends. It has no continuously moving parts such as gears, screws, shafts or bearings.

Bulletin 310 gives further details. Write for a copy.

ROBINSON *Air-Activated* Conveyor Systems
Division of MORSE BOULGER DESTRUCTOR CO.
211-G EAST 42nd STREET NEW YORK 17, N. Y.
Representatives in All Principal Cities

SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS

With Rheostat Control of Material Flow

INCREASE MATERIAL HANDLING EFFICIENCY

—by permitting the operator to adjust the material flow to suit the capacity of crushers, grinders, belt conveyors, screens, etc.

—by handling a range of materials from light fine powders to heavy ores.

Write for your copy of Catalog No. 455 illustrating and describing this equipment.

SYNTRON CO.

385 Carson, Homer City, Pa.

How Big is Your Market for

READY-MIXED CONCRETE...

TRANSIT-MIXED CONCRETE...

DRY-BATCHED MATERIALS...

You analyze the market, determine the volume you want, and Johnson engineers will do the rest.

Because their line is complete, Johnson engineers have available exactly the right combination of bin, batcher, conveying, elevating and storage equipment you need to operate profitably. Investment cost per yard will be low. Volume and quality will be high, because every unit in the complete Johnson line is tops in design and construction.

KOEHRING PRODUCT

The **C. S. JOHNSON** *Company*

KOEHRING SUBSIDIARY

CHAMPAIGN, ILLINOIS

EXTRA WHITENESS

Gives Extra Sales Appeal to Concrete Products

● Extra whiteness—gleaming, sparkling, whiteness—is something a woman readily understands and appreciates—whether it is the whiteness of her family's linens or the whiteness of masonry products. In either case she'll tell you, "The whiter, the better."

Trinity White is the whitest white cement. Use it wherever white cement is called for—in cast stone; architectural concrete units; stucco; terrazzo; cement paint; and many other uses. You will find its light reflective qualities useful on many types of floors; in dark courtways; for making roofing slabs and parapets reflect light through saw-tooth windows; and in many other places.

Trinity White is a true portland cement with all portland cement's strength, permanence, and easy workability. For complete information, write, wire, or phone Trinity Portland Cement Co., Republic Bank Bldg., Dallas, Texas, or 111 West Monroe Street, Chicago

TRINITY WHITE
PORTLAND CEMENT
PLAIN OR WATERPROOFED

"AS WHITE AS SNOW"

HI-DUMP, 2, 3, 4½ yd. sizes. LOW CHARGE type 2 to 8 yd. sizes.

JAEGER offers the only complete modern line...

Sealed Drum Top-Loaders are specially recommended for wet-mix concrete and also highly efficient for any type plant. One-shot top loading is the fastest method and insures proper distribution of the materials plus void space needed for a fast, thoro mix. Sealed drum holds heat in winter, protects concrete from bad weather and, in combination with "Slow" mixing through Jaeger's 2-speed transmission, maintains predetermined slump on long hauls. Lighter weight and ease of maintenance are also advantages of this type.

Jaeger End Loaders with exclusive Gated Hopper are the fastest charging and discharging end-loaders on the market.

ALL HI-DUMP Speed Merchants offer these exclusive Jaeger improvements:

- **Water Tank on Main Frame** — for more accurate measurement and lowest center of gravity.
- **High Pressure, Positively Clog-Proof Jet** —an outstanding improvement in water distribution in hi-discharge truck mixers.
- **Streamlined Enclosed Front End** for all-weather protection and winter warmth.
- **Transmission and Center Drive in Lifetime Alignment.**

For these and many other advanced features ask for new Catalog TM-5.

THE JAEGER MACHINE CO. Main Office, Factory Columbus 16, Ohio

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PUMPS · COMPRESSORS · HOISTS · LOADERS · PAVING EQPT.

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• STEARNS *Improved* JOLTCRETE No. 9 makes from 9 to 11 perfect 8x8x16-in. block per minute . . . Makes all shapes and sizes of units with all types of aggregates . . . New Automatic Carriage Drive delivers block to Offbearer. Power Offbearer delivers block to racks. Both eliminate hand labor.

Why STEARNS Leads

• ***Stearns always has been, always will be the trail-blazer,*** the pioneer earnestly seeking new, improved and lower cost methods of manufacturing better concrete masonry units. JOLTCRETE, which was a long, revolutionary step into the future came as a direct result of this policy.

• ***Stearns Leads***—more Stearns machines are in successful operation than those of any other manufacturer.

• ***Why?*** Because Stearns is progressive, practical—and has kept faith with the Industry.

• ***The Stearns machines illustrated on this page*** will answer any post-war production problem you may have. Stearns distributors will continue to give you the benefit of their mature experience. ***Make use of them.***

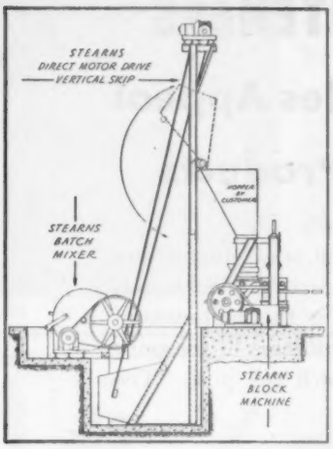
Literature describing any or all of the machines illustrated on this page will be sent upon request.

STEARNS
STEARNS MANUFACTURING CO. INC. ERIE, PA.
GENE OLSEN, PRESIDENT

Pioneers in the design and manufacture of modern machinery for producing concrete masonry units.

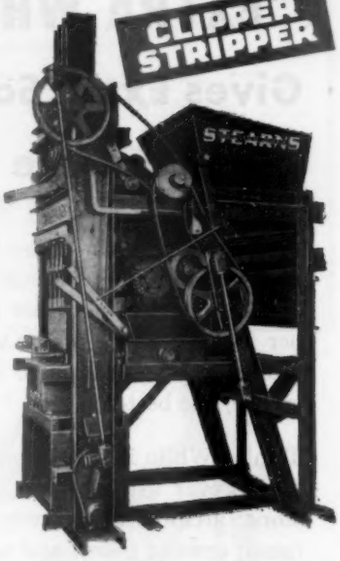
MIXER

• STEARNS MIXERS are equipped with wear-resisting, removeable, quickly shifted liner bars and adjustable "Sterloy" mixing blades . . . Discharge door opens easily, locks tight, won't leak . . . Conveniently located door control and handy bag shelf . . . Bearings are self-aligning, anti-friction, dust proof . . . Drums are of steel plate welded to heavy heads . . . Supplied in 12, 18, 28, 42 and 50 cu. ft. capacities with pulley, V-belt or Gear-head motor drive.



SKIP LOADERS

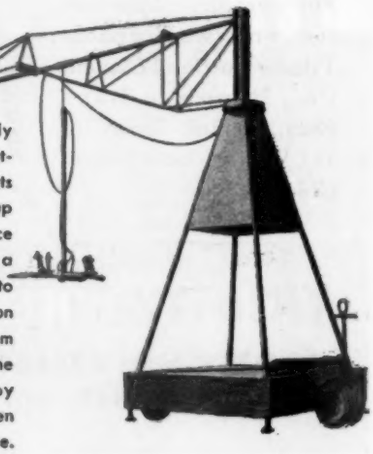
• STEARNS SKIP LOADERS cut costs of elevating mixed concrete into feeding hoppers and charging dry materials into elevated bins . . . Push button control stops bucket in any position—stops automatically when dumped . . . Easily installed as a separate unit and with any type of mixer. Independent motor or mixer driven types supplied.



CLIPPER STRIPPER

• STEARNS CLIPPER STRIPPERS produce more block per man per day than other machines with comparable power operations . . . Made in four models with power tampers ranging from manual feeding and stripping to all-power . . . Interchangeable parts permit progressive addition of power equipment without sacrifice.

YARDHOIST



• STEARNS-Warren YARDHOIST easily handles 800 block per hour . . . Outstanding features (covered by patents pending) are 1) its ability to pick up block from racks without top clearance and 2) its ability to rotate through a vertical plane permitting operator to stack block in any desired position without leaving spaces between them . . . Quickly spotted in any part of the yard . . . Compressed air supplied by hose from plant or gasoline driven Compressor mounted on Yardhoist base.

MORE FOR YOUR CRUSHING DOLLAR WITH UNIVERSAL "BASIC UNITS"

THE 293Q "PACEMAKER"

A Complete Dual Crusher Quarry Plant on Wheels Made From Seven Balanced Universal Basic Units

"Basic Units" are the fundamental parts (jaw and roll crushers, pulverizers, elevators, conveyors, hoppers, bins, feeders, sand drags, sand screens, settling tanks, gyrating screens, etc.) upon which all successful crushing, screening and washing depends. Universal builds over 20 "Basic Units" which offer the following advantages to producers:

1. ADD TO PRESENT EQUIPMENT

Universal "Basic Units" are soundly designed to produce top quantities of specification products, and built of the finest materials to assure long service life. They are made in sizes and types to fit into any existing set-up to increase plant efficiency and output, or to produce a different product.

2. GET A TAILORED-TO-MEASURE PLANT AT STANDARD PRICES

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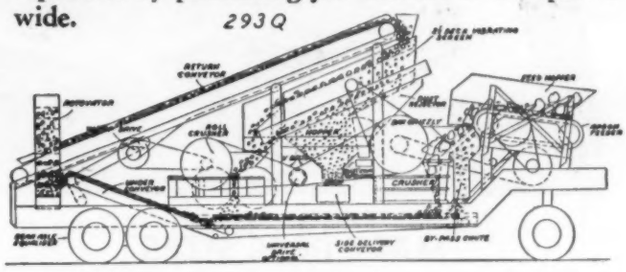
293Q



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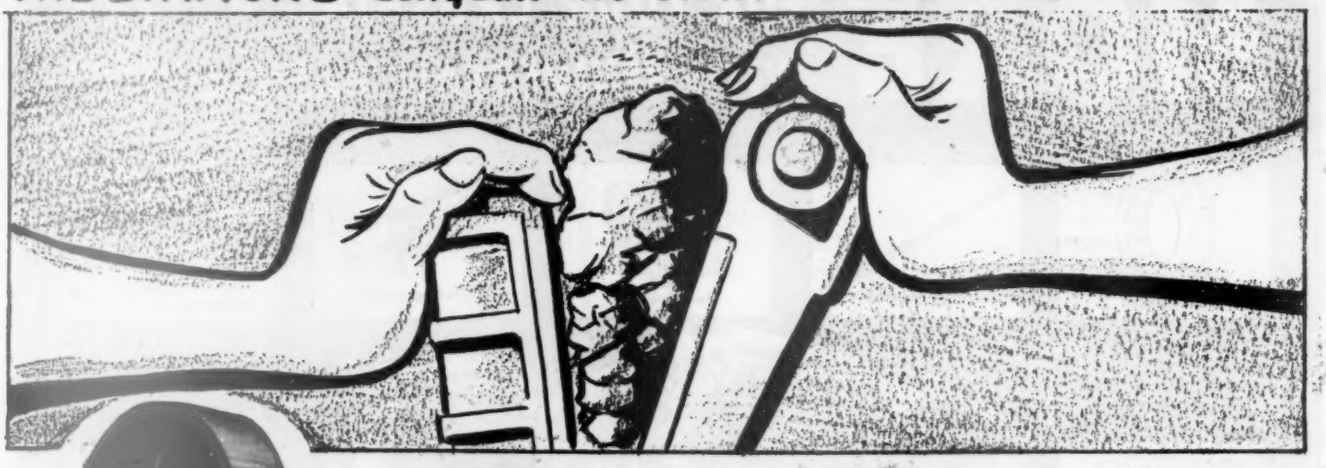
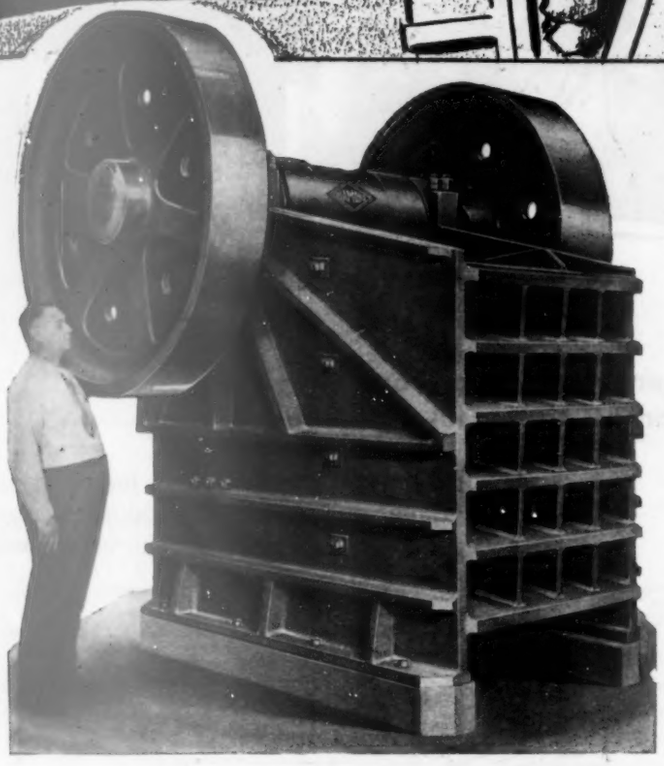
ROCK AND GRAVEL CRUSHING AND SCREENING PLANTS
ASPHALT PLANTS · SPREADEROLLERS

THE DIAMOND "Long Jaw" has GIANT CRUSHING POWER





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The output of your primary crusher controls the output of the entire plant. A DIAMOND crusher on the job keeps screens, conveyors and elevators running at capacity, and keeps bins loaded. It will handle even the hardest rock and operates with a minimum of undersize and excellent uniformity of product.

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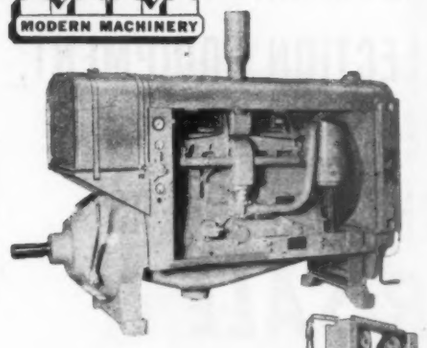
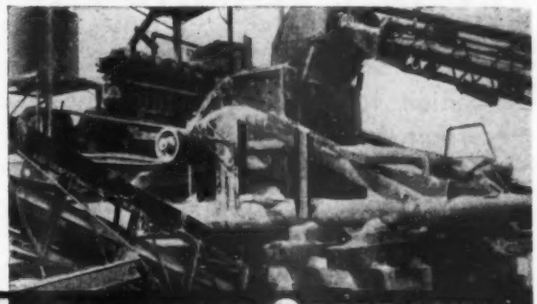


Picture at Right
BUILT TO TAKE IT . . . MM Model HUA 6-cylinder Power Unit driving a crusher.



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2 answers

to the

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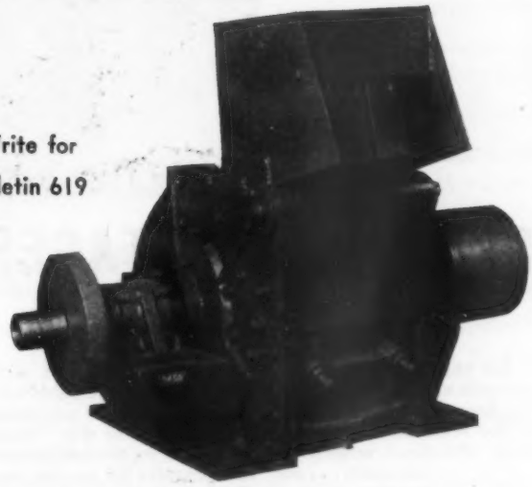

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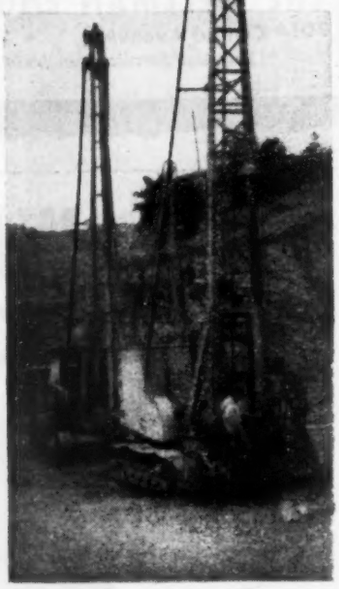

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The machine that made LIME popular!

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Here is the all-around machine you have been waiting for — put it on your truck and use it the "whole year 'round." Spreading lime is only one of the many jobs this model will do!

Patented and Patents Pending.

View of a 6½ ton load in a 11-foot body.

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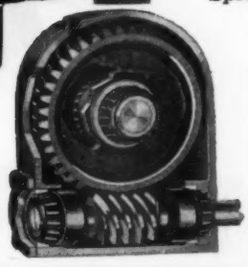
Steel Body and Undercarriage. Capacities, 5 to 15 tons. Made in 9, 11, 13, 15 and 17 lengths — and 19, 21, 23 and 25 foot lengths with sideboards.

Handles wet or dry lime. Timken straddle mounted bearings, ball and roller bearings throughout. Only two oil-sealed cases and 1 short roller chain drive. Automatic chain feed regulator. Automatic endgates — large endgate for fast dumping. New style automatic drag chain tightener with anti-wrap chain stop. Only 1 patented distributor used. Spreads from 35 to 45 feet depending upon truck speed.



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Wearers of the service emblem, you have proved to the world that Americans with American-made machines could not be defeated. Many of you have used LIMA cranes, shovels and draglines to build air strips and bridges; to load and unload ships; to remove debris from bombed areas and countless other jobs important in winning the war. You have seen the efficiency of LIMA machines under trying conditions, how their smoothness of operation, ease of control and fast operating speeds step up the tempo of the job. To the veterans, who will continue to serve America in peacetime operations, LIMA offers the same high quality shovels, cranes and draglines which served so well in war. LIMA shovels are made in sizes ranging from ¾ yard to 5 yards capacity, crane sizes range from 13 tons to 100 tons. Write for bulletins.

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SHOVEL AND CRANE DIVISION - - - - - - - - - LIMA, OHIO

It's On-the-Job Performance that Really Counts

The catalog claims, the salesman's sales talk are quickly proved or disproved "on the job". That's why we ask you to check our statements against the record. Hanson owners and operators everywhere endorse the matter-of-fact statement that "Hanson has the answer to your excavator needs".

Specifications in brief: ⅜ or ½ yd. capacity as a shovel – 4½ or 6½ ton lift as a crane – all welded steel construction – Timken Roller Bearings at vital points – bronze bushings at all other points of wear – chain crowd – full revolving – low center of gravity – special Hanson clutches, easily adjusted and relined without dismantling shafts – extra long crawlers – air controlled steering – heavy duty industrial type gasoline or diesel motors – quickly convertible to: CRANE, DRAGLINE, CLAMSHELL, PILE DRIVER, TRENCH-HOE, SHOVEL.

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The NEW LEADER leads the field again

New design • All Steel • Longer life spreader

• With this new style, extra-wide bottom spreader you will be able to handle all types of lime, either wet or dry, and even marl — which is usually extremely wet.

No vibrator is required and no one is needed to push down the wet lime. All you do is adjust the feed gate to the number of tons desired per acre and The NEW LEADER takes care of the rest.

Easy maintenance. . . . Rugged construction. . . More profit . . . when you own and operate THE NEW LEADER SPREADER.

Write for prices, delivery and dealer in your territory. Some territories still open for dealers.

Check all these features and compare them with any spreader on the market today.

- Gear boxes driving distributor discs are equipped with steel-cut gears and ball bearings running in dust proof and oil tight gear cases. Large gear box driving wide bottom chain conveyor is equipped with a steel ring gear and pinion. A thrust ball bearing, also running in a dust proof and oil tight gear case.
- New style conveyor is 24 inches wide.
- Extra heavy duty pintle type conveyor chain is used.
- Feed gate which determines thickness of spread now controlled by a lever easily reached from cab of truck.
- Check and compare size of shafting, thickness of distributor discs, size of roller chain, heavier pintle chain.
- Most important! Notice slope of spreader box.

HIGHWAY EQUIPMENT COMPANY, INC.

Manufacturers of the world's most complete line of spreaders.

Cedar Rapids, Iowa, U. S. A. Phone 32017-32018

NOTICE: Spreaders also available in all steel box, except hopper or spreader box of wood. Both sides and front end and back out of wood instead of steel.

To Improve Screening
AND PROLONG SERVICE LIFE . . .

ENDRICK Perforated Plate in vibrating and shaking screens is your assurance of uniform mesh throughout the entire service life of the screens. Full clearance prevents clogging and time-wasting delays — gives maximum capacity and accurate sizing. Furnished in shape of opening, in any thickness, in high carbon steels and Hendrick Heat Treated Steels for maximum service life.

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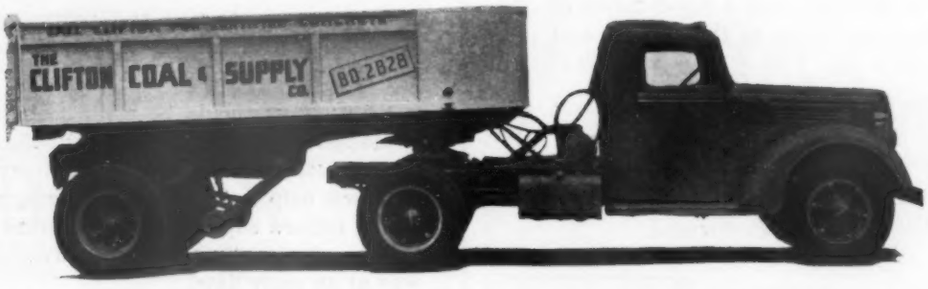
Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Amorgrids.

28 DUNDAFF STREET, CARBONDALE, PENNA.
Sales Offices In Principal Cities



Semi-Trailer with 10 Cu. Yd. Body for Sand or Gravel

SEMI-TRAILER DUMP UNITS

WITH ROCK TYPE OPEN END OR STANDARD TAIL-GATE TYPE BODIES FOR ALL TYPES OF BULK MATERIAL HAULING NOW AVAILABLE IN VARIOUS SIZES.

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For rugged, long-lasting wire rope be sure it bears the name Wickwire Spencer. Every step in the making of Wickwire Rope is under constant, careful control, from the special formulae used in making the steel, through processing of the wire until it is exact within a fraction of a thousandth of an inch, through laying of the strands and final closing.

Order Wickwire Spencer Wire Rope and be assured of the utmost in performance, safety and long rope life. It is available in all sizes and constructions—both regular lay and WISSCOLAY *Pre*formed.

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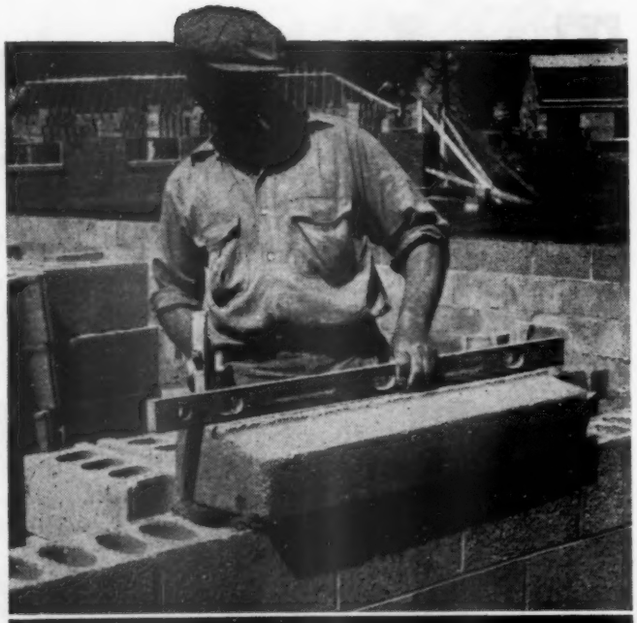

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Concrete products men and contractors have a vital responsibility in helping to get the nation's needed building program into full swing.

Every effort should be made to inform prospective home builders, business men, public officials and farmers that the use of concrete for walls, floors, partitions and roofs will help conserve other building materials which are in limited supply and thus permit a much larger volume of urgently needed construction to get under way at an early date.

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A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

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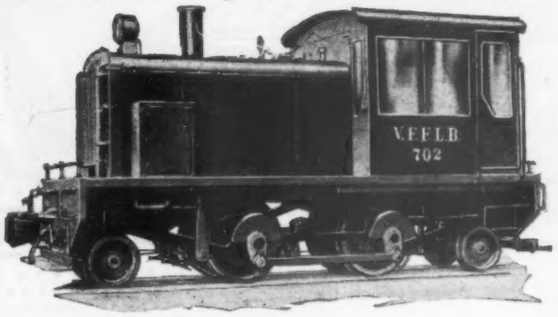
STEAM—GASOLINE—DIESEL LOCOMOTIVES—ELECTRIC OR MECHANICAL DRIVE

HAULAGE and your PROFIT SPREAD



Every per-ton haulage saving achieved by you, as you meet the maximum production demands of the approaching rise in construction activity, will add to your PROFITS.

If rail haulage is part of your operating picture, you will do well to consider entrusting your work to a Davenport Better-Built Locomotive. Built to FIT your particular conditions, a Davenport will deliver extra years of satisfying service at lowest ton-mile costs.

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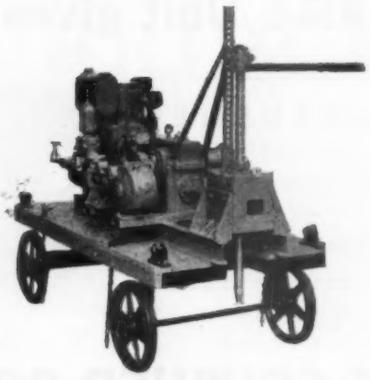
DAVENPORT LOCOMOTIVE WORKS
A DIVISION OF DAVENPORT BESLER CORPORATION, DAVENPORT, IOWA



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★ Complete line of tools and equipment for pit and quarry prospecting and all sub-surface exploration.

★ Determine, accurately, the depth, quality and extent of sand, gravel, clay, shale and alluvial deposits.

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★ Acker Core Drills are simple to operate—do the job quicker and at lower cost per foot.

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BELT LACING and FASTENERS for transmission and conveyor belts

"JUST A HAMMER TO APPLY IT"

ALLIGATOR
Trade Mark Reg. U. S. Pat. Office

STEEL BELT LACING

World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-60 gives complete details.

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BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-magnetic and abrasion resisting alloys.

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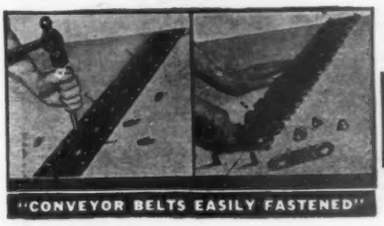
Sold by supply houses everywhere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FLEXIBLE STEEL LACING CO.
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It Scoops
It Hoists
It Loads

That's the

TRUK-LODER
for quick jobs

Fast as 15 or 20 shovelers — Loads a truck in 2 to 3 minutes
Fits on any type of truck

GENERAL UTILITY LOADING DEVICE

TRUK-LODER is especially recommended for contractors and communities. It's the working equal of a large and costly shovel in loading gravel, crushed stone, etc. For those requiring a shovel for short intervals, it can be detached quickly by removing two hinge pins and the truck put back into regular hauling service.

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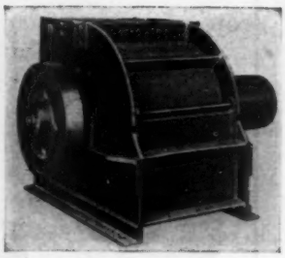
This EAGLE Unit gives Crushing Costs "BOTH BARRELS!"

. . . as a CRUSHER

. . . the EAGLE Pulverizer and Impact Breaker provides large-scale, high-economy output of accurately sized material for highway and general use.



. . . as a PULVERIZER

. . . the same machine is easily adjustable for reducing rock waste and dust to valuable fertilizer. This is a husky, durable unit, with one-piece electric welded steel plate frame.

EAGLE

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PULVERIZERS
CONVEYORS
LOADERS

Territory open for responsible distributors

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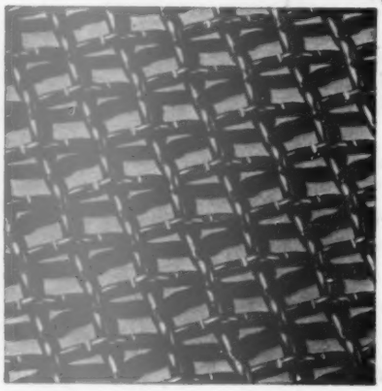

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Wire screens powerfully and accurately built to resist the slam bang service of Vibrators are available in all openings and grades. Rapid wear, is effectively reduced by the use of stalwart steels.

Stop losses! Write today.

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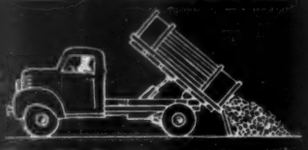
All Sizes — Any Capacity



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THORNTON 4-REAR WHEEL DRIVE

DOUBLE the payload capacity of your medium truck. Install a Thornton Drive. No priority required.

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RUGGED - SIMPLE Construction. LOWEST in FIRST cost and MAINTENANCE cost.

Two-Deck Model 42" x 96" Motor & V-rope D

Catalog No. 107—32 pages on Screens and Screening is yours for the asking.

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If you need woven wire, in any reasonable specification, CALWICO either has it in stock or can weave it to your order on short notice. Our range of stock sizes is very large, we have meshes fine enough to sieve talcum powder, and we make rock screens with 4" openings. So, whenever you need woven wire for any purpose, send your inquiry to CALWICO. The California Wire Cloth Corporation, 1001 22nd Avenue, Oakland, California.

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Models range from 350 to 35,000 watts, A. C. types from 115 to 660 volts, 50, 60, 180 cycles, single or three-phase and 400, 500 and 800 cycles, single phase. D. C. types from 6 to 4000 volts. Also available in dual voltage and special frequency types.

Onan ELECTRIC PLANTS

FOR PIT AND QUARRY APPLICATIONS

ONAN ELECTRIC GENERATING PLANTS supply reliable, economical electrical service for pit and quarry applications as well as for scores of general uses.

Driven by Onan 4-cycle gasoline engines these power units are of single-unit, compact design and sturdy construction. Suitable for mobile, stationary or emergency service.

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SELF-PROPELLED MOBILE CRANE

5 Ton CAPACITY

Fast, mobile UNIT, riding on rubber! Operated by ONE man . . . Powered by ONE engine... Controlled from ONE position in cab. Rugged, compact, well-balanced. Full revolving . . . Safe. FULL VISION CAB . . . Convertible to ALL attachments.

UNIT 357
5 Ton Mobile Crane

UNIT 357
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UNIT 357
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A 4910-¼

GOOD FOR ROUND TRIPS

RELIANCE

TO THE JOB AND BACK

NOW you can reach profitable jobs for miles around with the speedy Reliance portable rock crushing plant. It includes crusher, elevator, chute screen, engine and drive, complete and ready for action.

Compact unit is mounted on a four-wheel truck, steel or pneumatic tires. Low feed opening. V-belt drive. Engine fitted with clutch for easy starting.

RELIANCE Products include: Rock Crushers, Bucket Elevators, Revolving Screens, Street Sweepers, Storage Bins, Chip Spreaders, Belt Conveyors, Feeders, Separators, and other equipment.

PORTABLE CRUSHING PLANT

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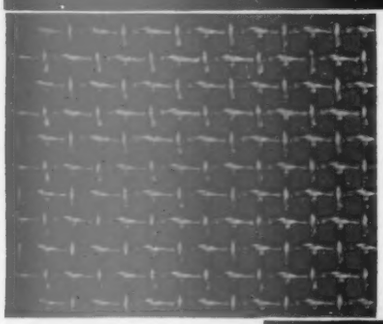
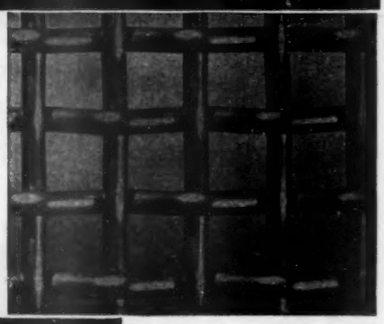
Trade Mark of ACCURATE, DEPENDABLE WIRE SCREENS



THE TYLER TRADE MARK REG. U. S. PAT. OFFICE DOUBLE CRIMPED



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Write Bucket Headquarters

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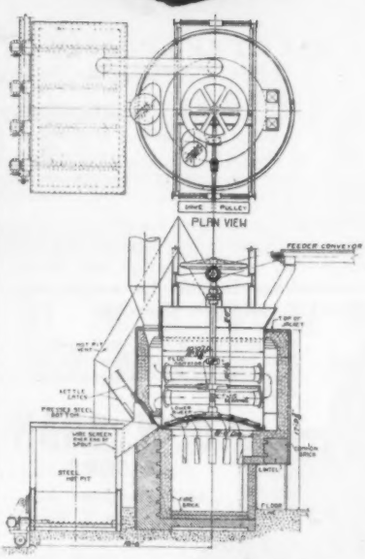
. . . STANDARD *for the* **GYPSUM PLASTER INDUSTRY**



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STURDY
Agitating mechanism

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GET A GOOD START

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sand washing plant

It's easy to take a long step towards operating economy by employing COLUMBUS complete sand and gravel plant service.
The operation illustrated above—one of the largest and most complete in southern Ohio—was designed by COLUMBUS, who also supplied the elevating and conveying machinery.

High-economy COLUMBUS equipment — practically everything from a single bucket to a complete plant — is available for operators seeking to improve their present production facilities. Write for Bulletin No. 155.

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Columbus Ohio

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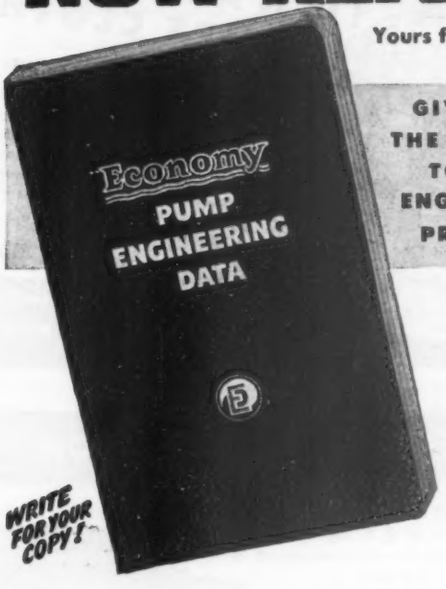

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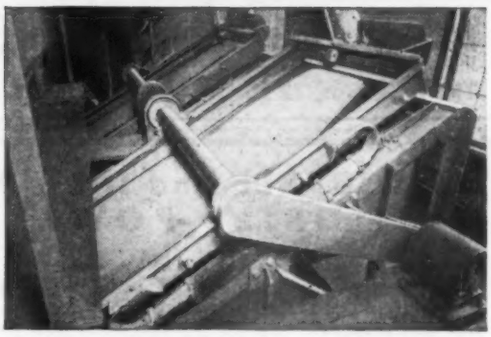
Be sure of your Screening Results!

USE **LINK-BELT** *VIBRATING* **SCREENS**



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Will Save Time,

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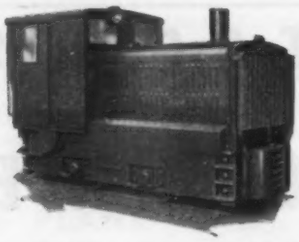

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"Creators of Power"

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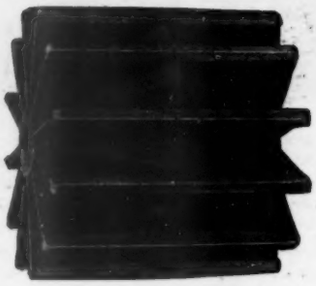
THOUSANDS OF USERS TESTIFY

that the Belt-Saver Pulley saves money and rubber and prevents accidents on their belt conveyors and bucket elevators.



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for Dependable PIT, MINE and QUARRY EQUIPMENT

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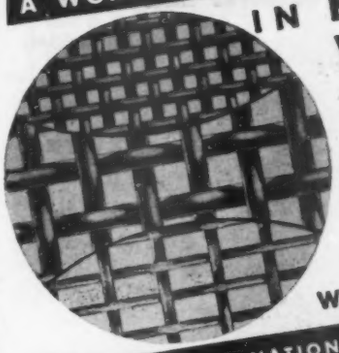
Industry has A WORLD OF CONFIDENCE IN NAT-ALOY WIRE CLOTH



COVERS EVERY REQUIREMENT

. . . for a dependable, long-wearing, non-crystalizing Screen Cloth. Has "Nat-Aloy" Lock Crimp Meshes. Preferred for screening accuracy, economy and serviceability. All Sizes — All Meshes — All Gauges.

Write for Catalog No. 55

NATIONAL WIRE CLOTH CO., INC.

St. Paul, Minn.

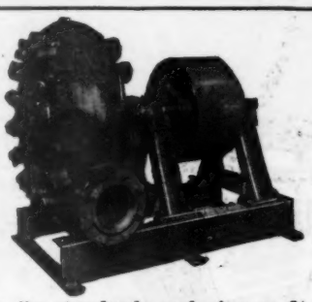
The Lightning

Sand and Gravel Pumps

HEAVY-DUTY

(Ball-Bearing)

and Low Head Types



Complete stock of replacement parts, elbows and fittings carried for prompt shipment.

Replacement parts made to jig standards and always fit and always available.

For 30 years LIGHTNING pumps have faithfully performed the work they are intended for. We manufacture a type and size to fit the need. Simplicity of design and ease of handling have made these pumps one of the most popular. Write for catalog now.

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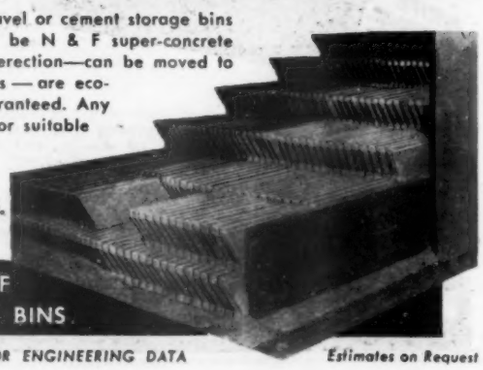
The sand and gravel or cement storage bins you erect should be N & F super-concrete stave bins—fast erection—can be moved to different locations — are economical and guaranteed. Any size or capacity or suitable type conveyor.



THE

NEFF & FRY CO.

CAMDEN, OHIO

N & F

PORTABLE BINS

1946 CATALOG FOR ENGINEERING DATA

Estimates on Request

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PLANT SUPERINTENDENT

Familiar with pipe, block or any special concrete product. Must have at least high school education, be mechanically inclined and have pleasing personality. Age limit 48. Postwar opportunity with large concern branching out into full line of products in various sections of the United States and operating on an incentive profit sharing plan. Past record must stand rigid inspection. Include photograph in reply. Address Box 709, care of

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Pit and Quarry Publications
538 S. Clark Street
Chicago 5, Illinois

Quarries
Crushing Plants
Cement Plants
Storage Methods
Operating Costs

E. Lee Heidenreich, Jr.
Consulting Engineer
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Phone 1828

Operation
Plant Layout
Design
Construction
Appraisals

POSITION WANTED

CHEMIST with 13½ years in cement industry desires position as CEMENT MILL CHEMIST. Just released from Navy and will accept position immediately.

Box No. 21, c/o Pit and Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED — SUPERINTENDENT

New middle-west industrial sand plant. Replies treated in confidence. Write qualifications in detail, past production record, brief personal history, salary expected.

• •

Box No. 31, Pit & Quarry Publications
538 So. Clark St. Chicago 5, Illinois

WANTED CEMENT CHEMIST

In a dry cement plant. State training, experience if any. Give references and how soon available or any other information.

★

Box No. 15, Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED

Assistant Superintendent for Silica Sand pulverizing plant in New Jersey. Must have complete knowledge from dredge to finished product.

Box No. 38, Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

POSITION WANTED

As a Mechanical Engineer. Extensive experience in production of cement, lay-out, and construction of plants, looking for executive position. Latin-America not excluded.

Box No. 33, Pit & Quarry Publications
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SUPERINTENDENT WANTED

Portland cement manufacturer has opening for Plant Superintendent. Permanent Position with old established company. Our own people know of this ad. In replying give age, education, experience, salary requirements and references. Write

• • •

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POSITION WANTED

As Plant Superintendent. Twenty years' experience operating lime and limestone plants. Available 30 days after notice. Must be permanent, with future possibilities.

Box No. 311, Pit and Quarry Publications
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MECHANICAL
DRAFTSMAN
WANTED . . .

. . . by midwestern cement manufacturer. Must be experienced in construction methods, machine installations, and plant layout. Steady position with advancement opportunities. State age, education, experience, references, last salary, and whether now employed. Address R. M. Cox, P. O. Box 2629, Kansas City, Missouri.

WANTED

MASTER MECHANIC to supervise a small mechanical and electrical crew, general plant work. Location Louisiana. Age limit 45. Position permanent.

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WANTED

Carload used 60# Railroad Rail.

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EBSARY GYPSUM CO., INC.
Caledonia, New York

WANTED TO RENT

1 Vibrating screen double deck.
1 50 cu. yd. steel bin.
1 No. 2 Gruelinder Ring Roll Machine.
1 15 x 30 Jaw Crusher.

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WANTED TO BUY

Buckeye Model 12
Wheel Type Trenching Machine

Write giving price, condition and location.

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WANTED

Used bulk cement bin with elevator and batcher.

ADAMS CONSTRUCTION COMPANY
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WANTED

Complete 2 Ton, cold asphalt plant. State price, location and condition. Must be available immediately.

Box No. 310, Pit & Quarry Publications
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Two 50 HP GE Type KT 3/60/2200 speed 1800 direct connected to 10 x 8 Union Steam pump horizontal flexible couplers, base compensators. Motor numbers 4221448 and 35. Both for $1500. These are awfully good.

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1—Pulverizing Unit, Williams "6", 140 HP Buda Power, Screen, Under Conveyor, Apron Feeder. SOLIDS.
1—Cedarapids "1824" RB Jaw Crusher.
1—Cedarapids 1836 RB Jaw Crusher.
1—Universal 2036 RB Jaw Crusher.
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1—Primary Crusher w/1226 Jaw, power unit, 3-axle chassis, w/under conveyor, cheap.
1—Atlas 24" x 60' NEW Portable conveyor.
1—Atlas 18" x 60' NEW Portable conveyor.
1—Eagle Bucket Loader. NEW.
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1—Universal 36" x 5' Vibrating Screen. Used.
1—Universal 30' Bucket elevator line.
2—Bin, 21 yd. Jack-Leg. NEW.

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1—Link-Belt "K-44" 1½ yd. Shovel-Drag.
1—Osgood 1¼ yd. shovel, w/crane boom.
1—General ¾ yd. Shovel-Drag.
1—Speeder "B-1" ½ yd. Shovel-Drag.
1—Sargent "22" ½ yd. Dragline.
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1—½ yd. Truck Crane 3-axle truck.
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2—Minneapolis-Moline 88 HP gas power units. NEW.
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1—Schramm "105" Port. Compressor.
1—Davey "105D" Port. Compressor.
1—Davey "315D" Port. Compressor.
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1—20 H.P.	G.E.	MTC 312	1150 RPM
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1—15 H.P.	Ideal	A-80-15	1200 RPM
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⅜ yd. Universal Shovel, Ohio. Price $1850.
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½ yd. Bay City Model K. Pennsylvania. Price $4800.
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½ yd. Buckeye Crane. Connecticut. Price $6650.
½ yd. Byers Bearcat Model 27 Shovel. New York. Price $2350.
½ yd. Byers Bearcat Shovel. New Jersey. Price $1250.
½ yd. Byers Crawler Shovel Model BB. Up-State New York. Price $5100.
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½ yd. Speeder L196 Model B3. Minnesota. Price $2850.
½ yd. Speeder Model B-2. Backhoe Shovel. North Dakota. Price $5100.
½ yd. Speeder Crane. Model B2. Illinois. Price $5100.
½ yd. Speeder Dragline Model B2. Idaho. Price $6600.
⅝ yd. Linkbelt Speeder Shovel Dragline. Idaho. Price $6300.
⅝ yd. Meade-Morrison Shovel. Pennsylvania. Price $4850.
½ yd. Meade-Morrison Shovel. Massachusetts. Price $4100.
½ yd. Michigan Shovel. Canada. Price on request.
⅝ yd. Northwest Model 2 Shovel. Alabama. Price $5900.
½ yd. P&H Shovel. New Hampshire. Price $6350.
½ yd. P&H Model 150 Dragline. Louisiana. Price $5100.
½ yd. P&H 150 Backhoe and dragline. Texas. Price $6400.
⅝ yd. P&H Model 200 Shovel. New Jersey. Price $2250.
½ yd. P&H Model 206 Shovel. Massachusetts. Price $1450.
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¾ yd. Browning Dragline-Shovel Model K2. Louisiana. Price $4400.
¾ yd. Bucyrus-Erie Model 10/30 Shovel - Dragline-Crane. Oregon. Price $7850.
¾ yd. Bucyrus-Erie 10/30 Crane. Ohio. Price $5700.
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¾ yd. General heavy-duty Shovel. West Coast.
¾ yd. General Shovel. Indiana. Price $8500.
¾ yd. Keystone Excavator Model 4-28. New Jersey. Price $1450.
¾ yd. Keystone Excavator Model 4-29. New Jersey. Price $1825.
¾ yd. 1941 Koehring Model 251 Shovel-Crane-Dragline. Oklahoma.
⅝ yd. Koehring Model 301. Michigan. Price $6250.
¾ yd. Koehring Model 301 Shovel and Crane. Ohio. Price $5400.
¾ yd. Koehring Model 301 Dragline-Shovel. Oklahoma. Price $6350.
¾ yd. Koehring 301 Shovel. Montana. Price $6800.
¾ yd. Koehring Model 301 Dragline. North Dakota. Price $6950.
¾ yd. Koehring Model 301 Crane. Illinois. Price $8850.
¾ yd. Lima Model 101 Dragline. Mississippi. Price $9100.
¾ yd. Diesel Speeder Model B-4. Idaho. Price $6550.
¾ yd. Speeder Model B5 Shovel-Dragline. North Dakota. Price $9800.
⅝ yd. Linkbelt Dragline. South Carolina. Price $3400.
¾ yd. Loraine 40 Backhoe. Tennessee. Price $7450.
¾ yd. Loraine 40 Shovel. Up-State New York. Price $7900.
¾ yd. 1940 Lorain 40 Chain Crowd Shovel. Massachusetts. Price $8300.
¾ yd. Lorain 40 Shovel. West Coast. Price $8800.
¾ yd. Lorain 40 Shovel, diesel powered. Ohio. Price $8400.
¾ yd. Lorain 40 Backhoe. Oklahoma. Price $7450.
⅞ yd. Lorain 45 Shovel. Tennessee. Price $7400.
¾ yd. Lorain Shovel. Arkansas. Price $8400.
¾ yd. Lorain 40 Shovel. Pennsylvania. Price $6450.
¾ yd. Marion Shovel-Dragline. Latest model. Iowa.
¾ yd. Marion Shovel. West Virginia. Price $2150.
¾ yd. Marion Diesel-Electric Shovel Model 21. West Coast. Price $6900.
¾ yd. Marion Model 120 Shovel. Pennsylvania. Price $5450.
¾ yd. Northwest Model 2 Shovel. South Carolina. Price $6450.
¾ yd. Northwest Model 3 Dragline. Texas. Price $7850.
¾ yd. Northwest Model 102 Shovel. Massachusetts.
¾ yd. Northwest Model 105 Shovel. Michigan. Price $3150.
¾ yd. Northwest Model 105 Shovel. Connecticut. Price $4850.
¾ yd. Osgood "Commander" 11 Shovel. Massachusetts. Price $5900.
¾ yd. P&H Model 300 Crane. Pennsylvania. Price $4300.
¾ yd. P&H Model 204 Dragline. Oklahoma. Price $1900.
½ yd. P&H Model 206 Crane. Ohio. Price $3400.
¾ yd. P&H Model 206 Crane. Illinois.
¾ yd. P&H Model 206 Dragline. Indiana. Price $2250.
¾ yd. P&H Model 206 Dragline. North Dakota. Price $3600.
¾ yd. P&H Model 400 Shovel. Wisconsin. Price $5350.
¾ yd. P&H Model 400 Shovel. South Carolina. Price $5150.
¾ yd. P&H Shovel and Crane. West Coast. Price $4150.
¾ yd. P&H Model 206 Dragline. Missouri. Price $5250.
¾ yd. P&H Model 206 Crane - Dragline. Michigan. Price $2850.
¾ yd. P&H Model 355. Caterpillar Diesel Engine.
¾ yd. P&H Model 400 Dragline. Florida.
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¾ yd. Unit Shovel Model 616. Minnesota.
1 yd. Austin Shovel Crane Model 75. Michigan. Price $5750.
1 yd. Brownhoist Crane. Pennsylvania. Price $5900.
1 yd. Bucyrus-Erie Gas-Air Shovel. Model GA-2. Up-State New York. Price $4250.
1 yd. Bucyrus-Erie Gas-Air Type GA3 Shovel. West Virginia. Price $4100.
1 yd. Bucyrus-Erie Dragline. Diesel powered. Pennsylvania. Price $4500.
1 yd. Bucyrus - Erie Diesel Shovel - Crane - Dragline. Louisiana. Price $4900.
1 yd. Bucyrus-Erie Model 30B Shovel-Dragline-Crane. Louisiana. Price $4900.
1 yd. Bucyrus-Erie Model 30B Crane. Caterpillar Diesel Engine. Illinois. Price $5300.
1 yd. Bucyrus-Erie 30B Dragline. Atlas Imperial Diesel Engine. Florida.
1 yd. Bucyrus-Erie GA2 Crane. New Jersey. Price $4400.
1 yd. Bucyrus-Erie 1030 Shovel. Oregon.
1 yd. Byers Master Crane. Dragline bucket. New Jersey. Price $6700.
1 yd. Linkbelt Speeder Shovel. Massachusetts. Price $8100.
1 yd. Linkbelt Shovel. Kansas. Price $5300.
1 yd. Speed Crane. New York. Price $6200.
1 yd. Linkbelt Model K-1 Dragline. Illinois. Price $6450.
1 yd. Linkbelt Model K-990 Dragline. Utah. Price $6700.
1 yd. Keystone Excavator-Skimmer-Backhoe. Up-State New York. Price $1450.
1 yd. Keystone Excavator Model 4R88 Shovel-Backhoe. Located Maryland. Price $1850.
1 yd. Koehring Dragline. Texas.
1 yd. Koehring Crane. Illinois. Price $5850.
1 yd. Lorain Model 55 Shovel. Diesel powered. West Coast. Price $8700.
1 yd. Lorain Model 60 Shovel, Ohio. Price $6900.
1 yd. Lorain Model 60 Shovel-Dragline. Minnesota. Price $6350.
1 yd. Lorain 60 Shovel-Dragline. Texas.
1 yd. Lorain 60A Shovel. Arkansas. Price $6300.
1 yd. Lorain 60A Shovel. New Jersey. Price $7450.
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1 yd. Marion 440 Dragline. Cummins Diesel Engine. Louisiana. Price $12,500.
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1 yd. Marion Gas-Electric Shovel. Pennsylvania. Price $7350.
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1 yd. Northwest Shovel. Model 4. Pennsylvania. Price $8300.
1 yd. Northwest Model 4 Shovel. Massachusetts. Price $7400.
1 yd. Northwest 104 Dragline. Oklahoma. Price $4900.
1 yd. Northwest Model 105 Backbone-Dragline. Nebraska. Price $7250.
1 yd. Northwest 105 Dragline. Idaho.
1 yd. Northwest Model 105 Crane. Michigan. Price $4650.
1 yd. Northwest Crane. Ohio. Price $4450.
1 yd. Northwest Model 105 Crane. Georgia. Price $1400.
1 yd. Osgood Shovel - Backhoe. Up - State New York. Price $6150.
1 yd. Osgood Crane. Backhoe attachment. Virginia.

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CRUSHER PLANT—DICKINSON MILL

544—Centers 24", 6 Ply Rubber Belt Conveyor, wood frame, 30" x 26" tail pulley with take ups. No Belt. Manufactured by Stephens-Adamson Mfg. Company, Aurora, Ill.

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1—92' Centers, 30" Steel Feeder Conveyor. Manufactured by Stephens-Adamson Mfg. Co., Aurora, Ill.

1—36" x 42" x 42"—¼" Steel End with Hopper Bottom.

1—62'0" Centers Bucket Elevator, 7" Channel Frame, 24" Rubber Belt with 24" x 15" x 10" Steel Buckets, 24" centers. Manufactured by Stephens-Adamson Mfg. Co., Aurora, Ill.

1—60" x 8' Hum-mer Shaker Screen, Type 39. Manufactured by W. S. Tyler, Cleveland, Ohio.

1—Air Bag Filter with 3—36" x 9" Receivers. Manufactured by The Northern Blower Company.

1—#45 Clarage Type SP Steel Plate Drive Exhauster, Top Vertical Discharge Ser. #12784. Manufactured by Clarage Pan Company, Kalamazoo, Michigan.

1—30' Centers Bucket Elevator, 7" Channel Frame, 24" Rubber Belt with 24" x 15" x 10" Steel Buckets, 24" Centers. Manufactured by Stephens-Adamson Mfg. Co., Aurora, Ill.

1—Size SX4 Pennsylvania Stone Crusher, Ser. #743. Manufactured by Pennsylvania Crusher Company, Philadelphia, Pa.

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Bedford, Ind.

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Dependable Used Equipment

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2400 CFM—20 Oz.
Many other sizes and types

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24" x 48" Screening Surface

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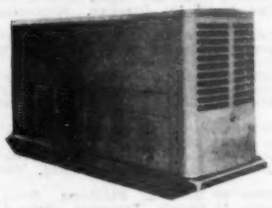

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300	Gen. Elec.	I-M	2200	514
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150	Westinghouse	CW	2200/440	1200
100	Westinghouse	vert	2200	1160
100	Ideal	AV	2200/440	720
100	Westinghouse	HF	440	230
75	Allis Chal.		440	720
50	Gen. Elec.	I-M	440	900

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667	Gen. Elec.	A	33000/2300
333	Kuhlman		33000/2300/440
150	Kuhlman		33000/2300/440
100	Gen. Elec.	H	33000/440
75	Westinghouse	S	3810/122/244
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Diamond Model 36 Gravel Crushing and Screening Plant in fine condition—complete with extra parts.

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Caterpillar 17-85 Diesel generator set, with D-17000 engine, 85 K.W.
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Allis-Chalmers No. 12 style "K" crusher, in good operating condition.
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3 Koehring Diesel Dumpsters.

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3, 4 and 8 Ton Plymouth 24" Ga. Gas Locomotives
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⅜ yard P&H Crawler Shovel-Dragline.
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1 yard Bucyrus-Erie Shovel New Cummins Diesel Engine.
6 1½ yard Easton V shape 24" Ga. Dump cars.

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1—20-ton WHITCOMB 36" Ga. Diesel Locomotive—rebuilt.

1—32-ton Whitcomb Standard Gauge Gasoline Locomotive.

1—80-ton BALDWIN Type 0-6-0 Standard Ga. with separate tender —rebuilt.

1—20-yd. WESTERN Air Dump Car, Vertical Cylinders, reconditioned.

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4—200 KW 3/60/400 V. Cleveland
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3—#19 Kennedy Van Saun fine reduction crushers complete with drive & 25 H.P. G. E. Motors.

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Can have immediate delivery.

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1—3 ton per hour Kunts Hydrator
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Each replaced for larger sizes. These are rebuilt and 100% efficient—90% new.
1—3 ton per hour Clyde Batch Hydrator
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We have a number of lime feeders and a number of hydrate feeders.
1—2½ yard size dump car 30" gauge track. Track gauge can be made to suit.
1—Portable Ingersoll Rand Air Compressor—315 cu. ft. per minute. Waukesha engine. First class condition—ready for use.
One complete Lime Hydrating Plant including buildings.
One 312 Gallon Road Grader 12' Blade—Excellent condition.

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1—Patch Planer $1200
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16—Chicago Pneumatic Riveting Hammers No. 60, 1 1/16" x 6. $45 each.

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1—Chrystie 80"x45' Rotary Dryer.
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2—Dorr 15' Bowl Classifiers.
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AIR COMPRESSOR
INGERSOLL-RAND PRE-2
Rebuilt 1943-44
Cyls. 37 & 23 x 27, 150 RPM

G. E. SYNCH. MOTOR 3/60/2300
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Across-the-line starting.

AFTERCOOLER
Can run for demonstration.
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500' Quaker 16" 4-Ply, 28 oz.
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Conveyor belting delivery from the factory is still tough. Better anticipate your requirements now—troughing rolls, head and tail pulleys, etc., now in stock.

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Gravel Plant Machinery

1½ cu. yd. Sauerman Slackline Cableway, 800 ft. Span.
120 H. P. Sauerman Electric 3 Speed Hoist, A. C. Motor, Line Speeds 100, 300, 900 ft. per minute.
100 ft. Sauerman Steel Mast, complete with mast bands and roller bearing tension and load line blocks.
1 Reel ⅞" x 1000 ft. 6x19 Plow Steel Cable, new.
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6—Blaw Knox Steel Bins.
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3 Story Structural Steel Screening and washing structure over bins—bolted.

For sale as a whole — reasonable price.

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1—Sturtevant Blower Fan No. 7
1—Sturtevant Fan No. 266698—Size 85—Design No. 5

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Porter, Vulcan 18, 17 ton stm. locos., 36" ga.
Whitcomb 8-ton gas locomotives, 24" gauge, (4).
Steam locomotives, std. ga., 25 to 140 tons.
Vulcan 29-ton steam locomotive, 42" gauge.
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A-C 7" Newhouse gyratory type reduction crushers.
A-C Superior 54" x 24" crushing rolls.
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50 KW 220 or 440-volt 3-phase 60-cycle 720 RPM GE Model 5 G350 Type ATB Form BL direct connected exciter with switchboard and meters, etc., first class shape. Ideal for Diesel drive, at $500.

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15 x 24, 18 x 32, 24 x 36.

COMPLETE STONE CRUSHING PLANT
including:
24 x 36 crusher, reduction mill, gyratory crusher, bucket elevators, screens, etc.

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Belt & Drag

PUMPS
4" and 6", centrifugal, gas driven. Rebuilt—very low price.

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Warehouse: Carnegie, Pa.

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Conveyor Belting...Transmission Belting...Elevator Belting...Fire, Water, Air, Steam, Suction or Welding Hose, etc.

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CARLYLE RUBBER PRODUCTS ARE NEW, GUARANTEED & LOW PRICED

CONVEYOR BELTING

ABRASIVE RESISTANT COVERS

Width	Ply	Top-Bottom	Covers
48"	8	1/8"	1/16"
42"	5	1/8"	1/16"
36"	6	1/8"	1/16"
30"	6	1/8"	1/16"
30"	5	1/8"	1/16"
24"	5	1/8"	1/32"
24"	4	1/8"	1/32"
20"	5	1/8"	1/32"
20"	4	1/8"	1/32"
18"	4	1/8"	1/32"
16"	4	1/8"	1/32"
14"	4	1/16"	1/32"
12"	4	1/16"	1/32"

Inquire For Prices - Mention Size and Lengths

TRANSMISSION BELTING

HEAVY-DUTY FRICTION SURFACE

Width	Ply	Width	Ply	Width	Ply
18"	6	10"	6	6"	5
16"	6	10"	5	5"	5
14"	6	8"	6	4"	5
12"	6	8"	5	4"	4
12"	5	6"	6	3"	4

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ENDLESS "V" BELTS

"A" WIDTH All Sizes | "D" WIDTH All Sizes
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FIRE HOSE

APPROVED SPECIFICATION HOSE
EACH LENGTH WITH COUPLINGS ATTACHED

Size	Length	Per Length
2½"	50 feet	$28.00
	25 "	16.00
2"	50 "	23.00
	25 "	13.00
1½"	50 "	20.00
	25 "	11.00

Specify Thread On Couplings

SPECIAL OFFER . . . HEAVY DUTY
RUBBER HOSE

WATER HOSE
Each Length with Couplings Attached

I.D. Size	Length	per Length
¾"	25 feet	$4.25
1"	50 "	8.00
	25 "	6.25
1¼"	50 "	12.00
	25 "	7.50
	35 "	10.50
	40 "	12.00
1½"	50 "	15.00
	25 "	10.00
	35 "	14.00
	50 "	20.00

AIR HOSE

I.D. Size	Length	per Length	Couplings
½"	25 feet	$5.00	$1.50 Pair
	50 "	10.00	1.50 "
¾"	25 "	6.25	2.50 "
	50 "	12.50	2.50 "
1"	25 "	10.00	3.50 "
	50 "	20.00	3.50 "

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1—New 10" Superior McCully (Allis Chalmers) steel frame fine reduction gyratory crusher with 100 HP electric motor.

1—Factory remanufactured Acme 16" x 32" solid steel frame jaw crusher.

1—New Acme 14" x 26" Style D solid steel frame jaw crusher.

2—#6 McCully gyratory crushers in good running condition; just taken from service.

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FOR SALE

As a Unit, one 25 x 40 Cedar Rapids Roller Bearing Jaw Crusher. One 210 H.P. Fairbanks-Morse Diesel Generating Set A.C. Current. Above equipment in perfect condition.

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100 tons capacity supported by four steel columns with discharge gate 9 feet from grade level. Includes skip hoist in enclosed tower. Can be easily converted to continuous elevator. Heavily built and in excellent condition.

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We offer a high capacity complete portable outfit, six months old or less (except shovel). Lease can be assigned. Located northern Illinois. Good reason for selling. Immediate possession. Requires $70,000 investment. Terms can be arranged.

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Telesmith rotary screen, 5 sections, 5' dia. 25 feet long. Complete with motor, switches, 2 extra pinion and drive gears, 26 extra pieces of screen.

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1—24 Telsmith Belt Type Bucket Elevator 12"x10"x50 feet, with steel frame.
1—25 Telsmith Sand Settling Tank.
1—26 Telsmith Sand Settling Tank.
1—Reliance Jaw Crusher, 10"x18".

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18 x 36 Universal roller bearing jaw crusher; very good condition.

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Locomotive: American, Steam, 16" x 24" Cylinder 6 wheel Saddle Tank, Built new 1927 National Board 180# Boiler.

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65 Ft. Bucket Elevator, continuous type to handle 100 yards per hour, including 15 H.P. motor and 16" 8-ply rubber belts with 14" buckets. Rubber belt less than three months old.

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2—315 cu. ft. 100# pres. Ingersoll Rand, model 315 and 315A portable Air Compressors with 105 HP Waukesha Oil Engines complete with accessories.

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Located at Iowa Falls, Iowa, all in usable condition, we offer the following for sale:

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1—16 x 16 Cedar Rapids Roll Crusher	600
1—8-7 Pennsylvania Hammermill—36 x 48 with spare hammer shanks, renewable tips and concaves	1000
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FOR SALE

1 —20 ton Locomotive Steam Crane, Link-Belt, No. 591
50 foot Boom
New boiler installed, October 1944
Complete with 1½ yard Blaw-Knox Re-handling Bucket
Electric Lights
Condition—Good
Price, f.o.b. Quarry.....$4500

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Ridgeway Steam Engine 13"x14", 135 H.P.
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All sizes NEW Perforated Rock Screen, No. 4 Gates.
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1—Stiff Leg derrick, with
Timber 14 x 14,
Beam 65 foot,
Mast 40 ft.
Legs 45 ft.

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¼ Yd. P & H Crane
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1½ Yd. P & H Crane Model 500
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GRINDING MILL, 33" Fuller-Lehigh complete with blowers, collector, and piping.
HYDRATOR, Clyde No. 3, 10'.
57 Side Dump Cars, 1½ yard, 24" gauge.
Box Car Loader with 5 HP Motor 220/1/60.

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Large and varied stocks of Light Weight Steel Line Pipe, seamless and welded steel tubing, hydraulic and Large OD tubing. Send us your inquiries.

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Allis-Chalmers Model L Tractor and Gar Wood Hydraulic 10-12 yard Scraper. Overhauled January, 1946. Good condition.

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28″ x 12″ Climax Jaw Crusher
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116′ Center 30″ Belt Conveyor Complete with Speed Reducer
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3—250 KVA G. E. 2300/460 V.
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Montgomery, Burford-Toothaker Tractor Co.
Alaska, Anchorage, Airport Machine & Storage Co.
Cal., San Francisco, Coast Equip. Co.
Los Angeles, Golden State Equip. Co.
Colo., Denver, Power Equipment Company.
Connecticut, New Haven, Wilhelm-Davies Co., Inc.
Fla., Miami, Allied Equip., Inc.
Fla., Orlando, High Equip. & Supply Company
Tampa, Epperson & Company
Ga., Atlanta, Tractor & Machinery Company
Ida., Boise, Olson Manufacturing Company
Ill., Chicago, Chicago Construction Equipment Co.
Maine, Portland, Maine Truck-Tractor Company
Mass., Boston, Clark-Wilcox Co.
Mich., Muskegon, Lakeshore Machy. & Supply Co.
Minn., Minneapolis, Phillippi-Murphy Equip. Co.
Miss., Jackson, Jackson Road Equip. Co.
Mo., Clayton, The Howard Corporation
Montana, Billings, Interstate Truck & Equip. Co.
Helena, Caird Eng. Works
N. M., Albuquerque, Bud Fisher Co.
N. Y., Albany, Milton-Hale Machinery Company
New York; Hodge & Hammond, Inc.
N. D., Fargo, Smith Commercial Body Works, Inc.
Ohio, Cincinnati, Carroll-Edwards Co.
Okla., Oklahoma City, Townsco Equip. Company
Oregon, Portland, Andrews Equipment Service
S. C., Columbia, Smith Equipment Company
Tenn., Knoxville, Dempster Bros., Inc.
Texas, Amarillo, T. W. Carpenter Equip. Co.
Texas, Dallas, Shaw Equip. Co.
Vt., Barre, A. M. Flanders, Inc.
Utah, Salt Lake City, J. K. Wheeler
Wash., Spokane, Andrews Equip. Service
Wisc., Milwaukee, Drott Tractor & Equip. Co., Inc.

Ransome Distributors

Ariz., Phoenix, Lee Redman Company
Ark., Little Rock, Kern-Limerick, Inc.
D. C., Washington, M. A. Doetsch Mach. Co.
Ill., Chicago, Thomas Hoist Company
Ind., Fort Wayne, American Steel Supply Co.
Ky., Paducah, Henry A. Petter Supply Co.
La., New Orleans, Ole K. Olson Company
Md., Baltimore, Stuart M. Christhilf & Company
Mich., Detroit, T. G. Abrams
Mo., Kansas City, Brown-Strauss Corp.
Neb., Lincoln Highway Equip. & Supply Co.
N. J., Newark, Johnson & Dealaman
N. C., Raleigh, Smith Equip. Company
O., Cleveland, H. B. Fuller Equip. Company
Pa., Philadelphia, Giles & Ransome
Wilkinsburg, Arrow Supply Company
Tex., El Paso, Mine and Smelter Supply Co.
Houston, McCall Tractor & Equip. Company
W. Va., Charleston, Clyde P. Beckner, Inc.

Worthington Distributors

Ark., Fort Smith, R. A. Young & Son
Little Rock, R. A. Young & Son
Ind., Indianapolis, Reid-Holcomb Company
Iowa, Des Moines, Electrical Eng. & Const. Co.
Ky., Harlan, Hall Equipment Sales Company
Louisville, Williams Tractor Company
La., New Orleans, Wm. F. Surgi Equip. Co.
Md., Baltimore, D. C. Elphinstone, Inc.
Mass., Cambridge, Field Mach. Company
Detroit, W. H. Anderson Co., Inc.
Flint, Gransden-Hall & Company
Mo., Kansas City, Mach. & Supplies Co.
N. J., Hillside, P. A. Drobach
No. Bergen, American Air Compressor Corp.
Roswell, Smith Machinery Company
N. Y., Buffalo, Dow & Co., Inc.
New York, Air Compressor Rental & Sales
Olean, Freeborn Equip. Company
N. C., Raleigh, Carolina Tractor & Equip. Co.
O., Cleveland, Gibson-Stewart Company
Toledo, The Kilcorse Mach. Co.
Pa., Allentown, H. N. Crowder, Jr., Inc.
Easton, Sears & Bowers
Harrisburg, American Equip. Corp.
Oil City, Freeborn Equipment Company
Philadelphia, Metalweld, Inc.
Pittsburgh, Atlas Equip. Corp.
Wilkes-Barre, Ensminger & Company
Texas, El Paso, Equip. Supply Company
San Antonio, Patten Machinery Company
Va., Richmond, Highway Mach. & Supply Co.
Wash., Seattle, Star Machinery Company
W. Va., Fairmont, Interstate Engineers & Constr., Incorporated
Wyoming, Cheyenne, Wilson Equip. & Supply Co.

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Worthington-Ransome Construction Equipment Division
Holyoke, Massachusetts

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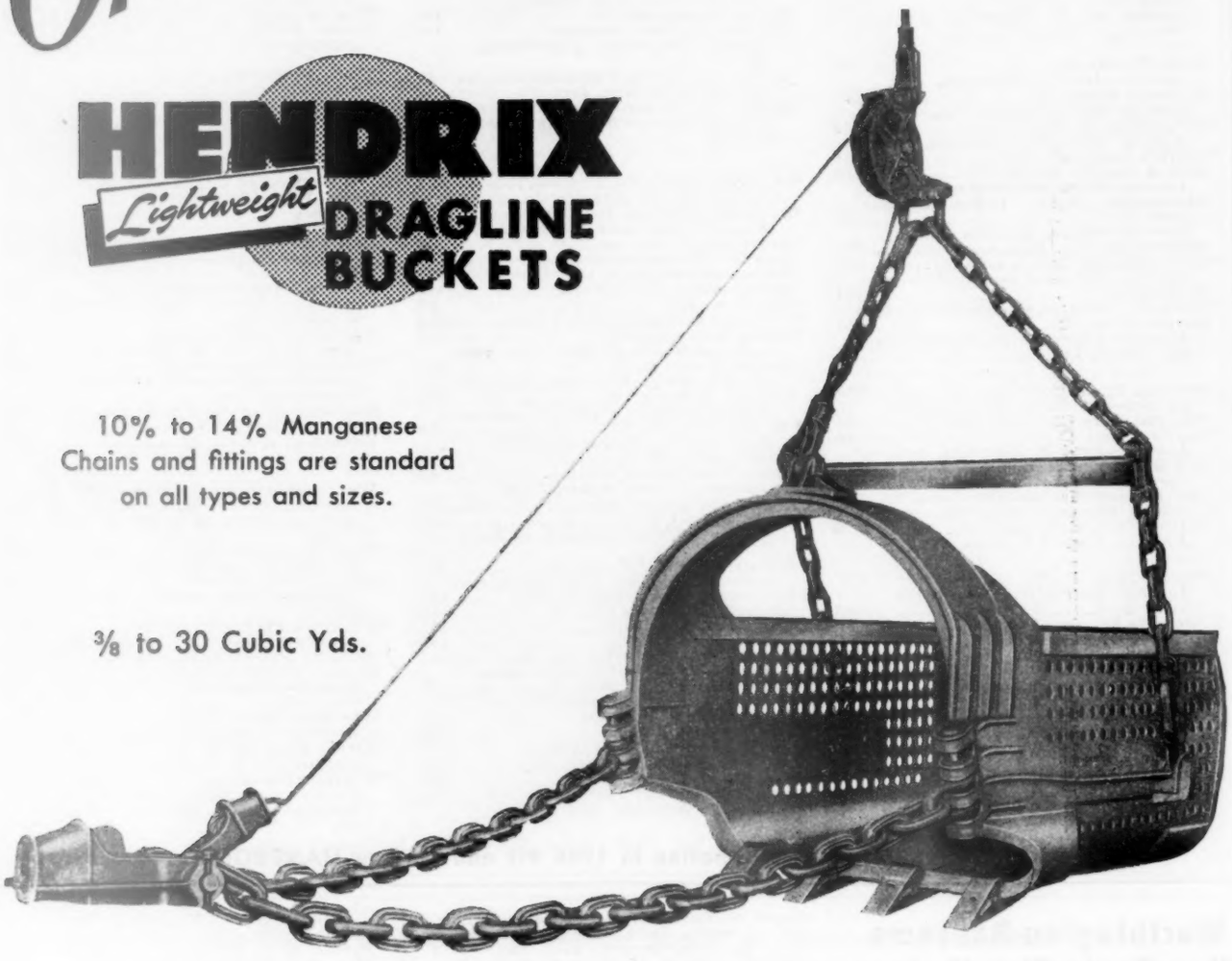
HENDRIX *Lightweight* DRAGLINE BUCKETS

10% to 14% Manganese
Chains and fittings are standard
on all types and sizes.

⅜ to 30 Cubic Yds.



We've taken the weight out of the bucket itself, to let you put bigger loads inside. Here's how: Because the HENDRIX Lightweight is 20 to 40 per cent lighter than other buckets, type for type, you can use larger buckets on your machines, designed for smaller operations. The same holds true for long boom operations... and in either case this can be done without exceeding the allowable loaded weight. In wet digging, you get bigger pay loads by leaving the water in the pit!

- ★ 20% to 40% lighter than other buckets, type for type.
- ★ All welded construction for greater strength and durability.
- ★ Manganese Steel chains, fittings, and reversible tooth points.
- ★ Full Pay Load every trip, even in wet diggings.
- ★ Perfect Balance; handles easier, fills faster, dumps cleaner.
- ★ Three Types; light, medium, and heavy duty. With or without perforations.

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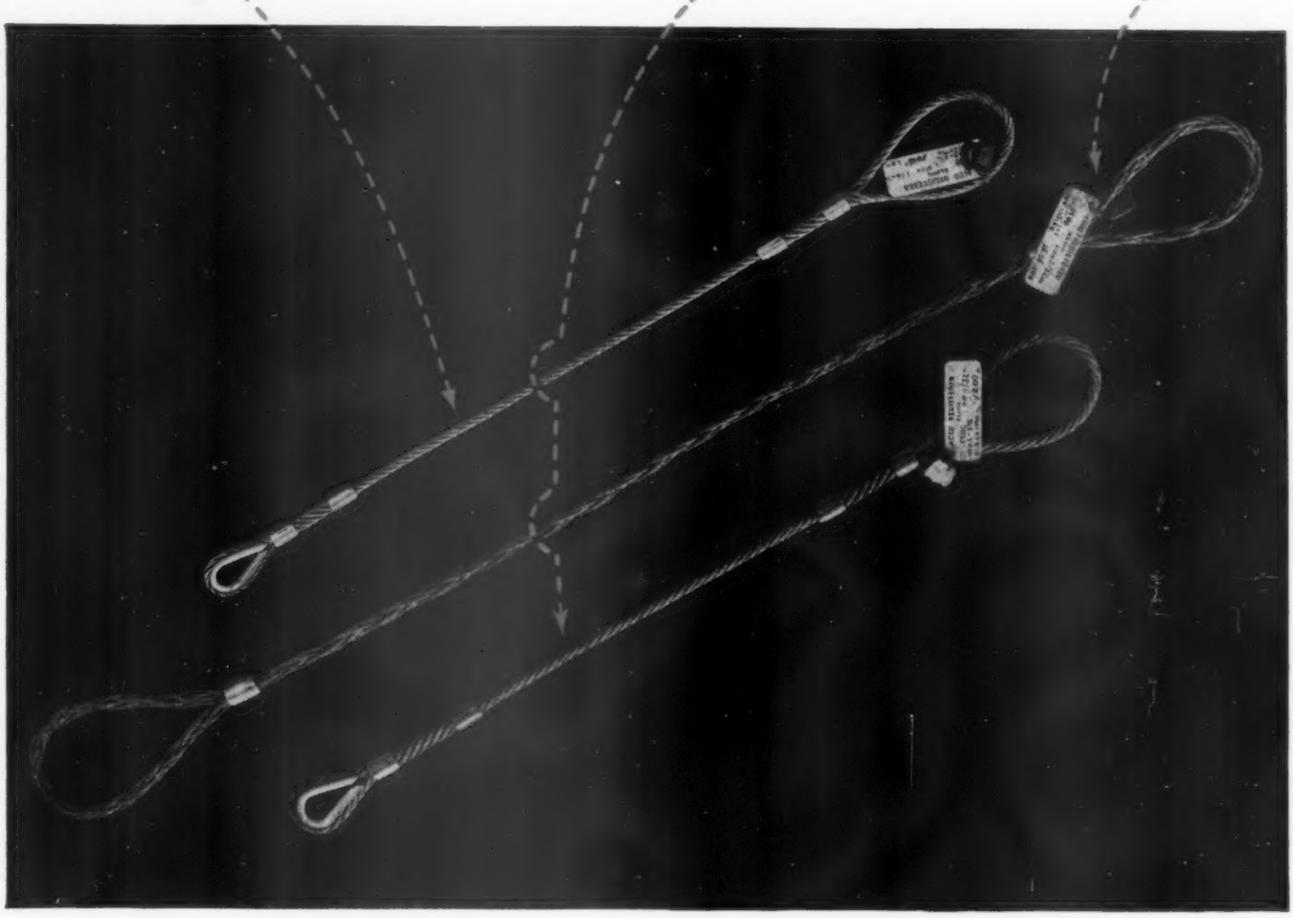
WHICH SLING?

Strand-Laid? Cable-Laid? Braided?



American Cable has a wider range of sling types than any other manufacturer. Here you can get the exact type of sling best suited to your job. Whether the conventional strand-laid sling, the cable-laid sling, or braided slings made up in 4, 6 and 8 parts, American Cable engineers hold no brief except for the one that will do your job best. And in wire rope endings, too, American Cable takes the lead with the new, 100% efficient ACCO-LOC Safety Splice and the swaged U-LOC. More than this, you may have your American Cable slings proof-tested and registered for known strength and safety. Here again is another sling service that is exclusive with American Chain & Cable. You cannot buy a better sling than an ACCO-Registered sling — made of TRU-LAY Preformed Wire Rope of Improved Plow Steel.

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IT'S A STUBBORN BRUTE AND THAT'S GOOD!

You can give this Blue Brute 315′ Compressor the toughest jobs on your books and it won't cry for help until you've got your money out of it many times over.

Take, for example, the three-point suspension of engine and compressor in a single housing — it's a Worthington feature that maintains alignment regardless of shock and vibration. Take the Worthington Feather* Valve — it will stay tight-seating and quiet for a lifetime Take the full force feed lubrication of engine and compressor — it keeps all moving parts in constantly healthy condition. Investigate those vital features!

Teamed up with those versatile Worthington Wagon Drills (that make holes in any direction and at any angle) or other Blue Brute Air Tools, your Blue Brute Compressor will supply *more air* per gallon of fuel — and will stay trouble-free no matter how tough the going.

Make a date with your near-by Worthington distributor so that he can give you the rest of the facts that prove *there's more worth in Worthington.*

*Reg. U. S. Pat. Off.

H8-4

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Pavers, Concrete Spreaders and Finishers*, Portable and Stationary Mixers, Pneumatic Placing Equipment, Truck Mixers, Plaster and Bituminous Mixers and accessories.

WORTHINGTON EQUIPMENT

Gasoline and Diesel driven Portable Compressors, Rock Drills, Air Tools, Contractors' Pumps* and accessories.

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Get more **WORTH** *from air with* **WORTHINGTON**

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Compressors from 60 to 500 cu. ft. capacity in mountings to suit all jobs. Rock Drills and Air Tools that have always set the pace for easy operation — available in a wide range of weights and sizes.

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